



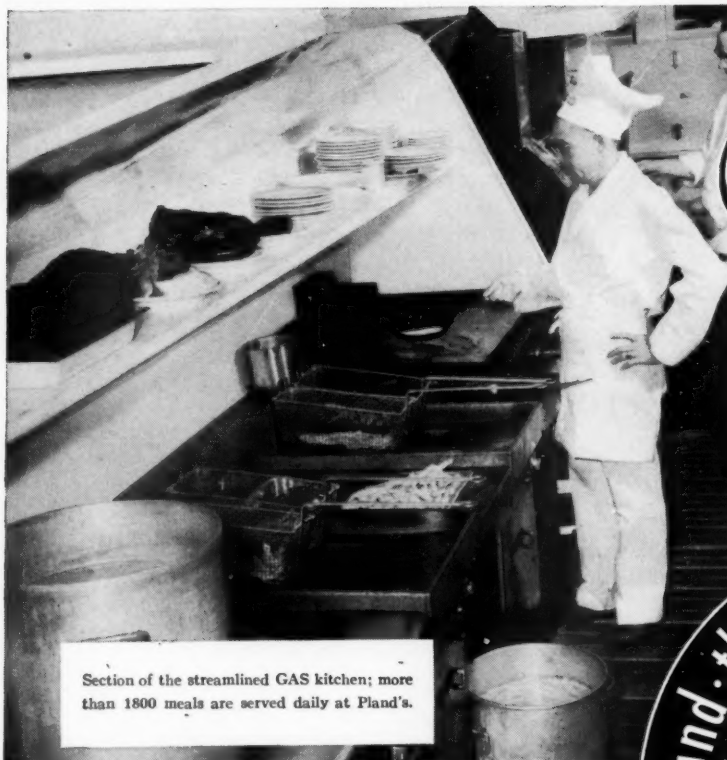
# AMERICAN GAS

*Association*

# MONTHLY

OCTOBER 1947


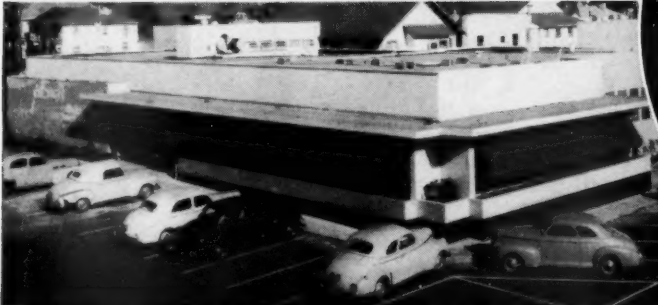
VOL. 29 · NO. 10



# GAS..

ideal  
fuel for  
profitable

Section of the streamlined GAS kitchen; more than 1800 meals are served daily at Pland's.

Pland's ultra-modern 24-hour service restaurant, at 265 McArthur Blvd. West, Oakland, California.

There's no more exacting test of the dependability and flexibility of GAS and modern Gas Equipment than in a 'round-the-clock short-order restaurant operation.

You'll want proof, of course, so just ask Chef Fred Rohrman of Pland's, Oakland, California. Mr. Rohrman says,

"We are more than pleased with the speed, reliability, and efficiency of our Gas-fired Equipment; it is easy to maintain and keep clean, aids greatly in efficient kitchen operation."

**MORE AND MORE...**

**THE TREND IS TO GAS**

FOR ALL  
COMMERCIAL COOKING

Pland's Manager Michael Lynn points out that in operating a 24-hour restaurant there are no "rest-periods" for equipment during which maintenance and cleaning crews have full sway. This continuous-cycle operation is made possible by the following modern Gas Equipment:

TWO DEEP FAT FRYERS  
FOUR 6-SECTION RANGES  
THREE COFFEE URNS  
ONE LARGE GRIDDLE  
100-GALLON STEAMER

55-GALLON STEAMER  
PRESSURE COOKER  
SECTIONAL BAKE OVEN  
STEAM TABLE  
BAIN MARIE

TWO AUTOMATIC WATER HEATERS

You'll find it worth your while to call in your local Gas Company Representative for advice in selecting efficient Gas Kitchen Equipment.

**AMERICAN GAS ASSOCIATION**  
420 LEXINGTON AVENUE, NEW YORK 17, N. Y.



As several thousand delegates head for Cleveland the gas industry's second full year of postwar effort draws to a close. Some of the industry's outstanding achievements since the Atlantic City convention are treated in this issue. . . . One major result of careful planning is the powerful new "Gas Has Got It" campaign designed to acquaint the public with the advantages of the modern automatic gas range built to "CP" standards. The honor roll of gas manufacturers participating in this campaign and the highly successful series of "Gas Has Got It" regional meetings are sterling examples of industrywide cooperation on the highest plane. . . . The anniversary opening of a new gas company headquarters in Greenwich, Connecticut, and the announcement that operations at the A. G. A. Laboratories have attained a new peak are symbolic of the extensive investment which the gas industry is undertaking in order to provide the best and most modern service for its customers. . . . The successful use of a "push button" system of pressure control in Dallas illustrates the advances in efficiency which gas utilities themselves have accomplished. . . . Further and final proof of the gains which the industry has made and the energetic plans which it is initiating will be revealed at the Cleveland convention.

JAMES M. BEALL  
EDITOR  
JAC A. CUSHMAN  
MANAGING EDITOR

EDITORIAL OFFICES:  
AMERICAN GAS ASSOCIATION  
420 LEXINGTON AVE., NEW YORK 17, N. Y.



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## Convention at Hand

**A**LL roads lead to Cleveland where the curtain is about to rise on the twenty-ninth annual convention of the American Gas Association. Final touches have been added to the program, speeches have been checked and rechecked, arrangements for the President's Reception and Dance are complete—the day is near at hand!

This year's convention will play an important part as a major tie-in with the gas industry's aggressive "Gas Has Got It" campaign, which is already in full swing. Operating problems, meeting increased competition, employee relations, expanded research and promotion, are but a few of the highly important subjects which will be scrutinized during the three-day meetings beginning October 6.

Three morning general sessions, a home service breakfast,

and afternoon meetings of different departments and sections are slanted to meet the taste of attending delegates. In honor of a gas man who played a prominent part in the industry's advances during recent years, Wednesday, October 8, has been set aside as R. W. Gallagher Day.

As the current Association year draws to a close, gas men throughout the country head for Cleveland to gain an indication of some of the promises, an idea of some of the problems which the new year will usher in.

Meanwhile, Mr. and Mrs. America hear the first rumblings of what is hoped will become a steady chorus—"Gas Has Got It!"

The convention program follows:

### General Sessions

MONDAY, OCTOBER 6—10 A.M.

MUSIC HALL, AUDITORIUM

#### Opening Remarks

R. H. Hargrove  
President, American Gas Association

#### Address of Welcome

Honorable Thomas A. Burke  
Mayor of Cleveland

#### Current Problems

C. M. White, President  
Republic Steel Corp., Cleveland, Ohio

#### The Association's Finances

Edward F. Barrett  
Treasurer, American Gas Association; President, Long Island  
Lighting Co., Mineola, L. I.

#### Election of Officers

#### Address of President—Progress Demands Responsibility

R. H. Hargrove, President  
Texas Eastern Transmission Corp., Shreveport, Louisiana

#### Your Association—A Report

H. Carl Wolf, Managing Director  
American Gas Association

#### EXECUTIVE SESSION—12 Noon

MUSIC HALL, AUDITORIUM

(Only Company member delegates are eligible to attend)

Election of Company Members

Election of Directors

Election of General Nominating Committee

Election of Committee on Resolutions

#### TUESDAY, OCTOBER 7—9:30 A.M.

MUSIC HALL, AUDITORIUM

#### The Public's Acceptance of the Facts and Figures of Business Accounting

Daniel J. Hennessy, Vice-President  
Jamaica Water Co., Jamaica, N. Y.

● Opposite: Close-up of welder at work on the new Biggest Inch pipeline—Southern California gas companies' 30-inch link in the 1,200 mile system built at a cost of about sixty million dollars to augment California natural gas reserves.

## Convention Headliners



*Joseph Pursglove Jr.  
Vice-President, Research and Development, Pittsburgh Consolidation Coal Company*



*Ward Keener  
Vice-President, Employee Relations, B. F. Goodrich Company, Akron, Ohio*



*D. P. O'Keefe  
President, Gas Appliance Manufacturers Association*



*C. M. White  
President, Republic Steel Corporation, Cleveland, Ohio*

### Presentation of Awards

#### Reaching Young America

Dorothy Ellen Jones  
Supervisor of Home Economics, Cleveland Public Schools, Cleveland, Ohio

#### Regulation of Gas Utilities

Nelson Lee Smith, Chairman  
Federal Power Commission, Washington, D. C.

#### Responsibilities of Increased Production

D. P. O'Keefe  
President, Gas Appliance Manufacturers Association, O'Keefe and Merritt Co., Los Angeles, California

### *R. W. Gallagher Day*

WEDNESDAY, OCTOBER 8—9:30 A.M.  
MUSIC HALL, AUDITORIUM

#### Industry-Wide Cooperation

Frank H. Adams, President  
Surface Combustion Corp., Toledo, Ohio

#### Gas Has Got It

J. J. Quinn, Vice-President  
Boston Consolidated Gas Co., Boston, Mass.

Will Coal Help To Meet the Future Need for Gaseous and Liquid Fuels?

Joseph Pursglove, Jr., Vice-President  
Research and Development, Pittsburgh Consolidation Coal Co., Pittsburgh, Pa.

#### Progressing Through Research and Promotion

Ernest R. Acker, President and General Manager  
Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y.

#### Is Industrial Peace on the Horizon?

Ward Keener  
Vice-President, Employee Relations, B. F. Goodrich Co., Akron, Ohio

#### Report—Time and Place Committee on 1948 Annual Convention

Alfred Hirsch, Vice-President  
The Laclede Gas Light Co., St. Louis, Mo.

#### Report—Resolutions Committee (Chairman to be elected at Executive Session)

### Natural Gas Department

TUESDAY, OCTOBER 7—2 P.M.  
EUCLID BALLROOM—HOTEL STATLER

#### Opening Remarks

Robert W. Hendee, Chairman, Natural Gas Department  
Vice-President, American Gas Association

#### Report of Nominating Committee

R. H. Hargrove, Chairman  
President, American Gas Association

#### Report of Spring Meeting—Time and Place

Charles E. Bennett, Chairman  
President, The Manufacturers Light and Heat Co., Pittsburgh, Pa.

#### Development of Standards for Testing Gaseous Fuels

Dr. A. W. Gauger  
Chairman—Committee—D.3—A.S.T.M., The Pennsylvania State College, State College, Pa.

#### Fuels for Today and Tomorrow

Max W. Ball, Director  
Oil and Gas Division, United States Department of the Interior, Washington, D. C.

#### Present and Prospective Outlook for Steel Tubular Goods

W. F. McConnor, Vice-President  
National Tube Co., Pittsburgh, Pa.

### Accounting Section

#### General and Property Records Accounting

MONDAY, OCTOBER 6—2 P.M.  
BALLROOM, CARTER HOTEL

#### Presiding:

A. W. Hatch, Co-ordinator  
General Accounting Activities Group

#### Report of Co-ordinator

A. W. Hatch  
Assistant General Auditor, Ebasco Services, Inc., New York, N. Y.

#### Summarization of Activities of General Accounting Sub- and Project Committees

H. D. Berger, Chairman  
Treasurer, The Peoples Natural Gas Co., Pittsburgh, Pa.

#### Job Training Program for Office Employees

J. P. Fleming  
Ebasco Services, Inc., New York, N. Y.

#### Discussion

#### Determination and Accounting for Construction Overheads

W. G. Pilgrim  
Superintendent, Property Accounting Department, The Peoples Gas Light & Coke Co., Chicago, Ill.

#### Joint A.G.A.-E.E.I. Taxation Accounting

MONDAY, OCTOBER 6—2 P.M.  
ENGLISH ROOM, CARTER HOTEL

#### Presiding

C. H. Mann, Chairman, A. G. A.  
Assistant Treasurer, Columbia Engineering Corp., New York, N. Y.  
W. S. Alt, Chairman, E.E.I., Union Electric Co. of Missouri, St. Louis, Mo.

#### Round-Table Discussion of Current Tax Problems Including Procedure and Technique Involved in the Preparation of a Federal Income Tax Return, the Latter Divided into Four Parts:

## A.G.A. Officials Who Have Guided the Gas



*R. H. Hargrove  
President*



*Hudson W. Reed  
First Vice-President*



*Robert W. Hendee  
Second Vice-President*



*Edward F. Barrett  
Treasurer*

1. The mechanical setup and the derivation of the figures used in the return.
2. Methods and procedures used in determining claimed allowances and deductions for depreciation and amortization of property.
3. Treatment of "gain or loss" transactions with illustrations of the conversion of such transactions as recorded on the books of account to statutory "gains or losses" as required in the income tax return.
4. The reasonableness of certain general expense deductions including repairs and maintenance.

#### Materials and Supplies Accounting

MONDAY, OCTOBER 6—2 P.M.

AVIATION ROOM, CARTER HOTEL

#### Presiding:

G. B. Herr, Chairman  
Special Representative, Priorities, The Peoples Natural Gas Co., Pittsburgh, Pa.

Discussion on Standard Packaging—Industry Standpoint

#### Customer Accounting Activities Group

MONDAY, OCTOBER 6—2 P.M.

RAINBOW ROOM, CARTER HOTEL

#### Presiding:

R. F. McGlone, Co-ordinator  
Customer Accounting Activities Group

#### Report of Co-ordinator

R. F. McGlone  
Field Accounting Supervisor, The East Ohio Gas Co., Cleveland, Ohio

#### Convincing the Public We Are Not "Pay-up or Be Cut Off People"

G. A. Wilson, Chairman, Project Committee  
Public Service Electric and Gas Co., Newark, N. J.

#### Discussion

#### Uniforming Meter Readers

W. R. Seidel, Chairman, Project Committee

Chief Clerk, Customer Accounting, Rochester Gas and Electric Corp., Rochester, N. Y.

#### Discussion

Supervisory Problems in the Development of Better Employee Relations—The Art of Persuading the Office Supervisor To Want To Do a Better Job, Illustrated in a Sound Film Entitled, "They Look to You."

Merle C. Hale

Kenneth Meade

General Motors Corp., Detroit, Mich.

#### Discussion

#### Customer Accounting Activities Group

TUESDAY, OCTOBER 7—2 P.M.

RAINBOW ROOM, CARTER HOTEL

#### Presiding

R. F. McGlone, Co-ordinator  
Field Accounting Supervisor, The East Ohio Gas Co., Cleveland, Ohio

#### Budget Plans for Payment of House Heating Bills

Carl Hammel, Chairman, Project Committee  
The Dayton Power & Light Co., Dayton, Ohio

#### A Customer's View of Some Accounting Forms

Harry Jeffs, Chairman, Project Committee  
Assistant Treasurer, Queens Borough Gas & Electric Co., Far Rockaway, N. Y.

#### Discussion

#### Collection Correspondence:

W. C. Young, Chairman, Project Committee  
Washington Gas Light Co., Washington, D. C.

#### Discussion

#### General and Property Records Accounting

TUESDAY, OCTOBER 7—2 P.M.

RAINBOW ROOM, CARTER HOTEL

#### Presiding

H. D. Borger, Chairman

## Convention Entertainment

### MONDAY EVENING

President's Reception, Dance and Entertainment (8:45 Main Ballroom, Hotel Statler)

Clint Noble's Orchestra

Eddie Peabody

New Freedom Gas Kitchen Lucky

Number Dance

"CP" Lucky Number Dance

The Clint Noble Trio

### TUESDAY AFTERNOON

Ladies' Bridge-Tea and Style Show (2:15 Main Ballroom, Hotel Cleveland)

The Walt Bergner Trio

### GOLF

Arrangements have been made with several Cleveland golf clubs for a limited number of convention delegates to receive golf courtesy cards.

Treasurer, The Peoples Natural Gas Co., Pittsburgh, Pa.

Final Report of Project Committee on Budgets

A. A. Cullman, Chairman, Project Committee  
Assistant Treasurer, Columbia Engineering Corp., New York, N. Y.

#### Discussion

#### Accounting for Natural Gas By-Products

W. H. Ainsworth, Chairman, Project Committee  
General Auditor, United Gas Pipe Line Co., Shreveport, La.

#### Discussion

#### Accounting for Underground Storage

S. M. Barrow,  
Chief Accountant, Michigan Consolidated Gas Co., Detroit, Mich.

#### Discussion

#### General Discussion Period

#### Joint A.G.A.-E.E.I. Taxation Accounting

TUESDAY, OCTOBER 7—2 P.M.

ENGLISH ROOM, CARTER HOTEL

#### Presiding:

C. H. Mann, Chairman, A. G. A.  
Assistant, Treasurer, Columbia Engineering Corp., New York, N. Y.  
W. S. Alt, Chairman, E.E.I., Union Electric Co., of Missouri, St. Louis, Mo.

Round-Table Discussion of Current Tax Problems Including Procedure and Technique Involved in the Preparation of a Federal Income Tax Return

(Continued on next page)

## and the Gas Industry in an Important Year



Len V. Watkins  
Chairman, Accounting Section



Karl Emmerling  
Chairman, Industrial and Commercial Gas Section



Wallace M. Chamberlain  
Chairman, Residential Gas Section



C. S. Goldsmith  
Chairman, Technical Section

(Continuation of session held Monday, October 6 at 2 P.M.)

**Materials and Supplies Accounting**  
**TUESDAY, OCTOBER 7—2 P.M.**  
AVIATION ROOM, CARTER HOTEL

**Presiding:**

G. B. Herr, Chairman  
Special Representative, Priorities, The Peoples Natural Gas Co., Pittsburgh, Pa.

**Standard Packaging—A Presentation by Manufacturers and Suppliers**

**Accounting General Session Luncheon**  
**WEDNESDAY, OCTOBER 8—12 NOON**  
BALLROOM, CARTER HOTEL

**Presiding:**

Leith V. Watkins, Chairman  
Accounting Section

**Address of Chairman**

Leith V. Watkins  
Secretary Controller, Panhandle Eastern Pipe Line Co., New York, N. Y.

**Report of Subcommittee on Accounting Equipment and Methods Developments**  
J. H. W. Roper, Chairman, Subcommittee Supervisor, Customer Accounts, Washington Gas Light Co., Washington, D. C.

**Discussion**

**Report of Nominating Committee**

E. F. Embree, Chairman  
General Auditor, New Haven Gas Light Co., New Haven, Conn.

**Election of Officers**

**Home Service**

**Breakfast**

**TUESDAY, OCTOBER 7—8 A.M.**  
GRAND BALLROOM, HOTEL HOLLENDEN

**Presiding:**

Mrs. Mary Belle Burnett, Chairman  
A. G. A. Home Service Committee, The Cincinnati Gas and Electric Co., Cincinnati, Ohio

**Greetings:**

R. H. Hargrove, President, American Gas Association  
H. Carl Wolf, Managing Director  
W. M. Chamberlain, Chairman, Residential Gas Section

**"Home Service Spotlights the Automatic Gas Range"**

A presentation by the A. G. A. Home Service Committee

**Open Meeting**

**TUESDAY, OCTOBER 7—2 P.M.**  
OHIO ROOM, HOTEL STATLER

**Presiding:**

Mrs. Mary Belle Burnett, Chairman  
A. G. A. Home Service Committee, The Cincinnati Gas and Electric Co., Cincinnati, Ohio

**"Home Service in Dealer Co-operation"**

Introduction—

J. M. Humphreys  
Business Promotion Manager, The Ohio Fuel Gas Co., Columbus, Ohio

**A Dealer Demonstration Using Dealer Kit**  
Mary Huck  
Home Service Field Supervisor, The Ohio Fuel Gas Co., Columbus, Ohio

**"Teen-Agers"**

Eleanor Morrison  
Home Service Director, Michigan Consolidated Gas Co., Grand Rapids, Mich.

**School Kitchen Replacement Plan**

Arnold G. Bur  
Sales Manager, Wisconsin Public Service Corp., Green Bay, Wis.

**Women Have Ideas**

Helen Robertson  
Woman's Page Editor, *Cleveland Plain Dealer*, Cleveland, Ohio

**Theater Cooking Schools**

Ardis Hubbs  
Home Service Director, Minneapolis Gas Light Co., Minneapolis, Minn.

**Industrial and Commercial Gas Section**

**TUESDAY, OCTOBER 7—12:30 P.M.**

**Luncheon**

ASSEMBLY ROOM, HOLLENDEN HOTEL

**Presiding:**

Karl Emmerling, Chairman  
Industrial and Commercial Gas Section

**Where Do We Go from Here?**

Louis Ruthenburg  
President, Servel Inc., Evansville, Ind.

**TUESDAY, OCTOBER 7—2 P.M.**

ASSEMBLY ROOM, HOLLENDEN HOTEL

**Address of Chairman**

Karl Emmerling  
General Sales Manager, The East Ohio Gas Co., Cleveland, Ohio

**America Eats Out**

Col. Paul P. Logan  
Director of Food Research, National Restaurant Association, Chicago, Ill.

**The Problems and Significance of Really High-Speed Flight**

John F. Victory  
Executive Secretary, National Advisory Committee for Aeronautics, Washington, D. C.

**Looking Ahead in the Fuels Supply**

Ralph A. Sherman  
Assistant Director, Battelle Memorial Institute, Columbus, Ohio

**Maintaining Good Relations During Critical Times**

Ralph S. Wenner  
Industrial Gas Engineer, The Ohio Fuel Gas Co., Toledo, Ohio

**Report of Nominating Committee**

Harry A. Sutton, Chairman  
Nominating Committee, Assistant Sales

Manager—Gas, Public Service Electric and Gas Co., Newark, N. J.

**Election of Officers**

**Residential Gas Section**

**MONDAY, OCTOBER 6—2 P.M.**  
MUSIC HALL AUDITORIUM

**Presiding:**

W. M. Chamberlain, Chairman  
Residential Gas Section

**Address of Chairman**

W. M. Chamberlain  
General Sales Manager, Michigan Consolidated Gas Co., Grand Rapids, Mich.

**Report of Nominating Committee**

J. J. Quinn, Chairman  
Vice-President, Boston Consolidated Gas Co., Boston, Mass.

**Election of Officers**

**What About Gas All-Year Air Conditioning?**

Frank C. Smith  
President, Houston Natural Gas Corp., Houston, Texas

**"Doing What Comes Naturally"**

Mildred Clark

(Continued on page 463)

## Fight Fires With Prevention Now!

● **KNOW WHERE THE NEAREST FIRE BOX IS**—Many homes and stores were destroyed by fire because nobody knew where to turn in the alarm.

● **LEARN HOW TO OPERATE FIRE EXTINGUISHERS**—Prompt use of fire extinguishers and other emergency equipment put out 60 percent of all fires, fire protection experts say.

● **CONDUCT FREQUENT FIRE DRILLS**—Home owners are finding it's good insurance to teach members of the family what to do when a fire breaks out. In schools, offices and industrial plants this is a "must."

● **RECOGNIZE AND REMOVE FIRE HAZARDS**—Some of the most dangerous fire hazards are the most easily removed. Be on the lookout for oily rags, rubbish accumulations, frayed wires, improper fuses, faulty furnace pipes and discarded matches.

● **BE ON THE ALERT FOR FIRE**—Fire strikes when you least expect it. All blazes are small at the start. More can be done in the first five minutes to fight fire than in the next five hours.





# Conservation Is Smart Business

To maintain a legitimate business profit, capital, management and labor must stand guard against loss of production resources

BY WILLIAM F. O'CONNOR

*Professor of Safety Engineering,  
College of Engineering,  
New York University*

IN spite of our great production facilities, our many technological advances and the tremendous strides we have made industrially, we stand indicted before all nations as being the most wantonly destructive and wasteful country this world has ever seen.

In this country we kill by accidents each year about 100,000 people, of which some 17,000 are industrial deaths. In addition, we injure over 10 million fellow citizens at a total accident cost of at least \$5 billion. Eleven thousand people lost their lives last year in fires, which at the same time destroyed over \$560 million worth of property. No other country could afford to be so profligate. Our fire loss in the United States is about \$2 per person per year. In France it is 48 cents and in Italy it is 15 cents.

Accidents and fires continue because of our feeble efforts against such powerful adversaries. Perhaps our tempo of living, our superabundance of many natural resources or the glorification of our standard of living, together with many unknown factors have so conditioned our national consciousness to the point where we are very seldom, if ever, in a conserving frame of mind.

This same national attitude unfortunately carries over into industrial practice where we see, on the part of both management and labor, indifference to the very factors that make production possible. These factors are: personnel, property and product. Taken together they constitute the production resources of an organization.

We must protect against all factors that may result in the loss of these re-

sources as well as those that may interfere with their maximum and efficient use, such as: accidents, fires, explosions, wastage and toxic properties.

Our country reached its present industrial greatness through our system of private enterprise. Under this system the only reason for the existence of an industrial organization is to make money. Under this capitalistic system we must have capital, management and labor each carrying out their respective duties and obligations while striving for the same objective. Anything that legitimately interferes with this legal profit should be substantially reduced or eliminated. From this premise we develop the need for and the importance of conservation.

With this in mind it is not difficult to see that the only valid reason for preventing accidents, fires, explosions, etc., is that they cost money and reduce the profit out of which are paid salaries, wages and dividends.

We have seen a tremendous expansion of the gas and chemical industries in recent years due to the development of new chemicals, synthetic rubber, new and more powerful explosives, enormous quantities of high octane gasoline, and the greater production of liquefied petroleum gases, as well as highly toxic substances. By attaching an increasing importance to conservation practices many of these developments were accomplished with a lower accident frequency rate than in peacetime.

Statistically speaking, it is about four times as safe to work in an ordnance explosive plant as to spend the corresponding time at home. We have also seen, in the case of hydrogen fluoride catalysis and the concentration of plutonium, that the most hazardous processes can always be made safe if we

← PROPERTY

Presented at A. G. A. Production and Chemical Conference, New York, June 2-4.





#### ▲ PERSONNEL

want to take the time, the effort and the money to make them so.

Any conservation program can well make use of the famous three E's, namely: Engineering, Education and Enforcement. I shall consider only the first, "E—Engineering." The second "E—Education," is being helped tremendously by the work of the Accident Prevention Committee of the American Gas Association and its well-organized program of safety messages and statistical reports. The last, "E—Enforcement," rests entirely with management and its ability to get all levels of supervision and workers to carry out its policies.

With the industrial trend toward higher operating pressures, the production and transporting of more highly flammable and more highly toxic substances, the need for greater emphasis on chemical process safety becomes apparent.

The best place to get safety into a chemical plant or a chemical process is on the drafting board and the best place to develop process safety in a chemical engineer is in college as part of the reg-

ular subject matter when he is studying chemical engineering. The student thus recognizes process safety as being part of good chemical engineering.

For many years we have heard the complaint that the graduates of our technical schools were quite well-trained with regard to technical subjects but lacked an appreciation of the human factors. Machines and equipment have been designed with respect to the yield point of steel but not necessarily with respect to the fatigue point of the employee. Equipment is designed for the A.P.I.-A.S.M.E. code, but not for the operator who is expected to make it work.

Regardless of how the design conforms to the various codes, if it does not take into account the safety and the health of the people who have to operate it, it will not run at top efficiency. If equipment is not designed so that it can easily be taken apart or isolated for inspection or repairs, then it is not the best design from an operating point of view. With a little forethought equipment can be designed so that all piping can be solidly blanked off close to the equipment, thereby isolating the equipment for inspection. Arrangements should be made for draining, cleaning and purging such equipment. Adequate provision should be made to permit the average-sized inspector to enter and look around.

I would like to plead for more co-operation between production men and designing engineers. I am sure we would have better designed equipment and plants with the attendant ease of operation, if the design men had to operate, inspect and repair their own creations. Better designed plants would make production people happier and their excess energy could then be used in praise of the design men instead of the current practice of damning them.

There is much room for improvement in layout so as to avoid fire, accident and health hazards. Several well-known companies make to scale plastic models of their pilot plants as well as of their commercial units in order to spot any hazards and eliminate them before construction. Doorways and stairs should be arranged so that no one would be trapped in an emergency. Most industrial codes require exit lights on independent circuits and that they be lit at all times.

Raw material, intermediate and final product storage should be grouped together for ease of protection but subdivided to reduce risk. Open structures are best for handling liquefied petroleum gases so as to avoid pockets of explosive mixtures. Unventilated tunnels and pipe chases only provide places for explosive mixtures to accumulate.

Positive ventilation should be provided for hazardous and harmful substances and then only the most modern and thoroughly proven system should be used. If a plant is designed so as to be easy to clean and keep clean, considerable hazard has already been eliminated and the work of the foremen as well as the employee is made easier. I have never been able to find out why architects and engineers fail to provide enough cupboards, washing facilities and room for janitors' equipment and supplies.

Why does personal safety equipment and first aid fire equipment have to be purchased after the plant is built and in operation? It is part of the process and should be built into it. Such equipment should be selected with a view to its specific use and minimum resistance to its use on the part of the employee.

Many chemical plants of the future will require medical control of their employees. At least blood and urine analyses will be required. Air analyses and perhaps the sulphate ratio determination can be improved. Progressive concerns at the present time have facilities for complete diagnosis. It should not be difficult to establish a good medical and industrial hygiene program, as in most cases the insurance carrier will absorb a part of the cost. In fact, they will often supply plans for the dispensary and medical facilities.

#### Vital Cog

The foreman is the fellow who can either make or break the company. He is the person directly responsible for the protection of personnel, property and product. Why not give him accommodations in accordance with his worth. He should have an office with facilities complete enough to enable him to do his work properly.

There can be no doubt that the voluntary codes of the various organizations and associations have saved thousands of lives and millions of dollars

in property, but we should always consider these codes as minimum requirements and we should always seek a plus value in our design work.

In chemical plant design, space, if it is available, is quite an asset. It can be used to segregate risks and subdivide concentrations of valuable or hazardous products by duplication of units so that in case of fire or explosion the plant could run at reduced capacity instead of suffering a complete shutdown.

This fundamental principle of subdividing concentrated values has been grossly violated in the past. We have only to look back to The East Ohio Gas Co. explosion in Cleveland, the Rubber Warehouse in Massachusetts, the perchlorate bath in California and the recent Texas City disaster to cite a few. The principle of subdivision holds whether we consider dollar value, explosibility, flammability, heat content or population density.

No more flammable material should be permitted in a building than is the absolute minimum for good operation.



All run tanks and meter tanks should be outdoors and properly protected by dykes or fire trenches. All flowmeters and gauge glasses should be adequately protected against breakage. If involved in fire these items are the weakest points of the system.

Property is also protected by proper design of equipment which permits its ready removal for repairs or else provides means for isolating it from the rest of the system for hazardous repair work.

The usual safety devices, such as relief valves and rupture discs, should be installed in safe fashion. Discharge ports on safety valves should discharge free of walkways, paths, fireboxes and intakes to air compressors. In spite of many sad experiences we still design and build plants and pump houses where the relief valves discharge indoors.

Where there is danger of explosion every effort should be made to provide adequate venting area. I have seen scored glass windows still intact after explosions that have demolished six inch brick walls. The Bureau of Mines has shown that placing ordinary brown kraft paper over the venting areas of a test chamber is sufficient to develop an explosion pressure of a few hundred pounds. The answer to this venting problem has been supplied by several plants that have been built with the fourth wall completely open.

Most buildings and processes can be protected against fire loss by adequate water supply but there are a few cases where water cannot be used and we must go to carbon dioxide flooding. In the case of the industrial Grignard reaction carbon dioxide is obviously out and we must resort to some form of dry powder extinguishment.

In handling fires involving LP-gas equipment the latest thought on the subject is to cut off fuel supply and let it burn out but to cool every bit of equipment nearby. Here the only answer is a fixed sprinkler installation with automatic detection and actuation. Tests have shown that maximum heat can be reached in a few seconds. If there is any appreciable delay in applying water to such a system, the water lines are

so hot that water when finally applied turns to steam and bursts the pipes.

All fire lines should be brought to a building direct from the street main. There should be no common connection with process water. It is thus possible to have fire protection water available at all times.

Water supply in a plant, as well as in a building, should be looped and the loop should be crossed at several points. This will enable most of the plant to keep operating in case there is a break in the main, either through failure, accident or explosion. It will also insure better water pressure if there is a heavy demand during a fire or for that matter, during normal operation.

### Interlock Systems

In extra hazardous work, door interlock and valve interlock systems have been used successfully. Thus the number of people in an area can be controlled to a calculated risk.

One of the most widely used methods of protecting equipment is by means of inspection. It may take a little longer to design a plant so as to permit of easy inspection but it will certainly pay dividends later by cutting down off-stream time.

A properly organized and operated mechanical test and inspection system can return many times its cost of operation. It enables one to spot failures before they occur. Shut-downs can be made on schedule instead of being forced. Repairs can be planned instead of being emergency or rush-rush type. A complete duty and service record is thus made of every piece of operating equipment. This performance data is of inestimable value as a guide in making future purchases.

All equipment should be designed for ease of blanking, purging and entry. Every bit of surface of unfired pressure vessels should be easily available for visual inspection, hammer sounding, thickness determinations, eccentricity and distortion measurements. Nozzles, manways, walls, valves, fittings and piping should be checked for wall thickness. In spherical pressure vessels that have failed the fractures seem to originate near the manway or flanges.

It is most difficult to inspect exchangers, cool- (Continued on page 459)

← PRODUCT

# Laboratories' Operations Hit Peak

**Annual report discloses approval plan's full contribution to an intelligent development of the gas appliance market**

**R**ELASE by the American Gas Association of the motion picture, "Winning Seals of Approval," emphasizing the consumer benefits of approved gas equipment, comes at an appropriate time when consumer interest in the Laboratories' approval plan is again at a high level. The film also marks the completion of 22 years of Laboratories' operations.

The significance of the plan to the gas industry as well as to the public is reflected in Laboratories' operations for the year, for services and activities of all departments have reached an all-time peak. Handling without difficulty the sharp rise in appliance production experienced, total 1946-47 services increased approximately 40 percent over last year, exceeding even the level of war-work years by about 20 percent.

## Notable Contributions

In releasing its annual report, the Laboratories Managing Committee not only noted that wide distribution of literature describing the plan was made by Association members, but pointed to the plan's contribution to an orderly and intelligent development of the gas appliance market.

"Few other industries have been able to proceed as smoothly as far as establishment of basic technical policies and multitudinous benefits derived from a well-oriented and progressive standardization program are concerned," the committee stated. "Despite increased costs of operations, it is estimated that the ultimate cost of the approval plan to consumers remains approximately five cents per appliance."

Increases in individual departmental services ranged from 22 percent for requirements activities to more than 80 percent for inspection operations. Testing of appliances for approval increased over 30 percent while research activities mounted about 50 percent.

Expansion of the testing department in preparation for an increased volume of work proved adequate to handle an increase of 50 percent in the number of appliances checked. Some 3,000 models were submitted during the year. Central heating appliances again reflected the industry trend to gas house heating with testing of such equipment accounting for slightly more than 35 percent of the total volume. Modern needs for more hot water were reflected in the fact that water heater testing ranked next with approximately 21 percent.

Space heaters accounted for 14 percent, ranges for ten percent, and testing of conversion burners, accessories and miscellaneous appliances comprised the remaining 20 percent of the total. It is estimated that the grand total of appliances and accessories which have undergone practical performance tests at the Laboratories now exceeds 31,000.

New developments in appliances submitted included several innovations. In the space heater field, designs were submitted incorporating in-the-wall construction employing outer wall flue discharge and introduction of outside air for combustion. Unit heaters for the first time employed horizontal instead of vertical tube construction in small types. Water heaters and accessories of more streamlined design appeared. Several clothes dryers and incinerators of new design were tested.

Inspection services to manufacturers, following the general trend of rising appliance production, were greatly expanded over those of the preceding year. Not only was the number of field calls far above that made formerly, but office operations were greatly increased as well. Many new companies entered the gas appliance field and listing of all models and types of equipment in the "Directory of Approved Gas Appliances and Listed Accessories" consequently required the addition of approximately 50 pages. Most new companies entered the conversion burner, central heating, water heating, space heating and accessories fields.

In the requirements division, the post-war trend toward simplification, revision and co-ordination of the various sets of gas appliance standards, in keeping with advancing technology and testing techniques, continued throughout the year as an important phase of the work. Revision and simplification of current domestic range requirements represented the major undertaking. Also completed was a separate set of requirements for dual oven type combination ranges. The revised range text represents a reduction of approximately 25 percent.

Association research assigned to the Laboratories carried forward the broad outline of the national program designed to advance the cause of gas on all fronts. Fundamental studies on technical problems as well as the integration of gas equipment and appliances into present and future building and construction trends characterized work undertaken in the domestic field.

## Age of Science

● In this age of science, the language of the scientifically elite is most perplexing. In Washington recently Dr. George Russell Harrison, dean of the Massachusetts Institute of Technology, related this example of our time:

A New York plumber wrote the U.S. Bureau of Standards his discovery that a dose of hydrochloric acid would quickly open a clogged drainage pipe and asked if it was a good thing to do. A Bureau scientist replied: "The efficacy of hydrochloric acid is indisputable, but the corrosive residue is incompatible with metallic permanence."

The plumber wrote back, thanking the Bureau for telling him the method was fine. The scientist, a little disturbed about the misunderstanding, showed the correspondence to his boss (another scientist). The latter wrote the plumber: "We cannot assume responsibility for the production of toxic and noxious residue with hydrochloric acid and suggest you use an alternative procedure."

The plumber answered again. He agreed with the Bureau—hydrochloric acid worked fine. The two scientists, upset over the future of New York's drainage, called in a distinguished colleague to break the impasse. In a final letter to the plumber the third scientist reluctantly lapsed into the layman's language: "Don't use hydrochloric acid. It eats hell out of the pipes."

—The Mission Pilot

# Remote Pressure Control in Dallas

Seven years' experience with "push button control" of city's high pressure distribution system shows practicability of pressure control devices for gas industry use

BY L. A. BICKEL

*Chief Engineer and Assistant Secretary,  
Lone Star Gas Co.—Dallas Division of  
Distribution*

**P**RESSURES in Dallas' intermediate high pressure distribution system serving 110,000 customers have been remotely controlled from a central point for seven years by "push button control." What once required a large part of the time of several men (with automobiles) working from about 5 a.m. to 9 p.m. is now handled by a single man at the shop office as a side-line duty—and this man is able to do a far better job!

Gas enters Dallas at five city gate stations where field line pressures of 150 to 400 pounds are reduced to the minimum required to render proper service to the low pressure distribution system and to large consumers supplied directly from the intermediate high pressure system.

The pressure control devices are installed in each of the five city gate stations and are actuated by control switches in the company's distribution shop office. Recording pressure gauges are also installed at the shop office, giving a complete picture of the pressures at the five measuring stations and at six other critical points on the intermediate high pressure system. With this information, outlet pressures at the city gate stations can be maintained at the minimum necessary to adequately supply the demand. All these instruments and a recording atmospheric thermometer are mounted on a central control board. (See Figure 1.)

The connecting link between the remote points of pressure control and transmission and the central control board are telephone pairs (wires) leased from the local telephone company on a monthly rental basis. These pairs are the same as those used for regular telephone service and require no special facilities on the part of the telephone company. Rental is computed on a mileage basis between the two points,

measured "as the crow flies." In Dallas the distances from the central control board to the remote points of pressure control and transmission vary from two to six and one-quarter miles, and the monthly rental for all circuits is \$173 plus \$43 federal tax.

Two pairs of lines are required to each of the five city gate stations, one for the pressure control equipment and the other for the pressure recording equipment. Only one pair is required for recording pressure alone. Electric service is required at both the transmitting end and the recording end of the system to operate small, electric clock-type synchronous motors. The current requirements for this function are negligible.

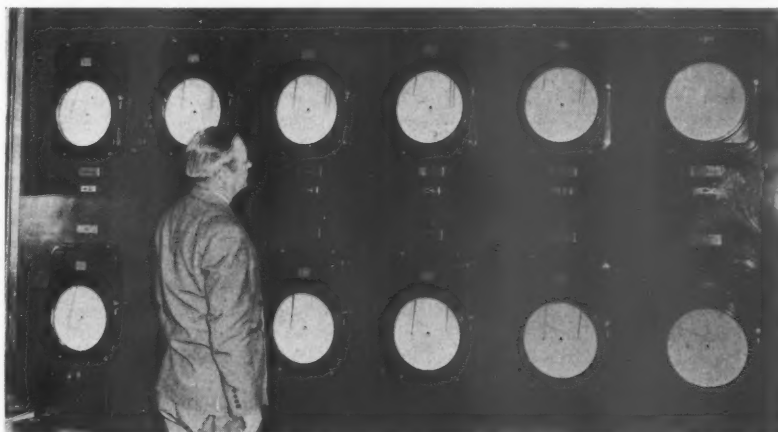
The pressure recording instruments on the central control board are equipped with warning lights and a buzzer. Whenever the pressure reaches a predetermined high or low point, the warning light over the offending instrument flashes on and the buzzer

sounds, thus warning the attendant that immediate action is required.

In normal operation, the pressure raises and cuts at the city gate stations are gradual and only in amounts necessary to maintain satisfactory operating pressures at the critical points on the system—all under the complete and instantaneous control of one man. The top row of instruments on the central control board, with the exception of an atmospheric thermometer, records the pressures at the outlet side of the five city gate stations, and the lower row records the pressures at the six critical points on the intermediate high pressure system. In each instance, the pressures at the critical points are influenced most by the city gate stations whose pressures are recorded immediately above it.

The pressure control devices installed in the city gate stations consist of a pressure transmitter and a pressure controller which raises and lowers the pressures by means of a diaphragm motor valve connected to the city gate regulator. (See Figure 2.)

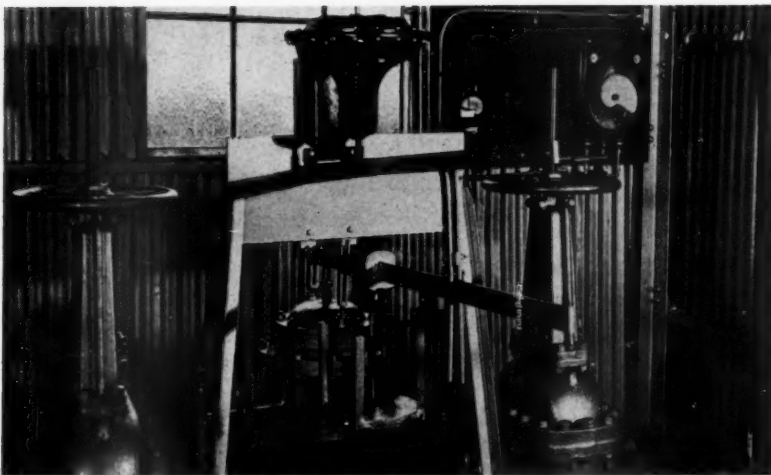
A likely question is, "Just how reliable is this equipment and what happens when something goes wrong?" Of course no mechanical device is perfect, but after seven years' experience, we



*Central recording and control board can be handled by a single man at the shop office*

Presented at A. G. A. Distribution Conference  
in Cleveland, April 14-16.





*Close-up of pressure transmitter and pressure control equipment in city gate station*

have had very few instances of the equipment failing to function properly and these have caused no serious difficulties. In the event of power failure or telephone circuit breaks, the control equipment maintains the pressure being carried at the time of failure.

A short circuit in the telephone pair controlling the pressure control equip-

ment may cause it to either raise or lower pressures at the city gate, depending on the direction of current flow. The city gate regulator can be set at a predetermined minimum and the pressure will not drop below that point. It is unlikely that excess pressures of any consequence would ever develop before the trouble is corrected, but if they

should, the safety relief valve at the station would furnish the necessary protection.

Some of the benefits from centralized pressure control are:

1. Reduction in unaccounted-for gas by making it possible to maintain lower operating pressures.
2. Reduction in operating expenses—men and automobiles formerly used to regulate pressures at the various points of control several times each day, no longer required.
3. Added security against interruptions of supply or other abnormal situations—any city gate regulator can be instantly adjusted to quickly restore the balance of the system in the event of line breaks or diminutions of supply, or to adjust deliveries in any desired proportion.
4. Provides better system pressure regulation by avoiding extremes.

This system is what might be termed "remote manual control." About ten years ago we made our first remote-control installation in a town of about 1,000 meters, which was supplied through one city gate station. The installation was fully automatic and the pressure on the outlet side of the city gate station was controlled by a transmitter installed at the lowest pressure point in town. In order to maintain a pressure of 2.5 pounds at this low point on a typical winter day, it was sometimes necessary to raise the city gate station from about four pounds at 5 a.m. to 11 or 12 pounds at 7:30 a.m. Our experience with this installation influenced our decision to install the present manually controlled system in Dallas.

At the beginning of World War II we were experimenting with a new type remote pressure signaling (not control) device which has extremely interesting possibilities for the industry. It would be especially useful for obtaining pressures at locations where a remote recorder is not necessary or is not practical and would have the advantage of making it possible to obtain the pressure at any time from any available telephone, including long distance. Telephone facilities are used for this operation too, but in an entirely different manner from that previously described.

The only special equipment required is a sound transmitting unit located at the point where the pressure is desired. When the telephone number assigned to this location is called, the device "takes down the receiver," so to speak, and sounds a (Continued on page 468)

## Opportunity for Trade Associations

● Busier times are ahead in this country for most business associations. Many of these agencies have always performed valuable services for members, but must now consider expansion of their work. Others, working less effectively for lack of interest or support, may soon be required to assume more serious responsibilities. The reason for such expansion and improvement is that the Federal government, in tightening its belt, will soon discontinue the reporting of many kinds of business data widely distributed from Washington.

The Department of Commerce, the Bureau of the Census and the Bureau of Labor Statistics are preparing to reduce some of their statistical services, and eliminate others. Numerous monthly reports covering foreign trade, industrial and agricultural goods, retail and wholesale business and other economic activities of the United States will be issued less frequently, or not at all.

The opportunity for trade associations is therefore limitless. Officers of the more alert organizations serving manufacturing industries or merchandising companies will recognize at once certain extraordinary opportunities for extending the work of their associations by producing additional figures and reports which will be unobtainable elsewhere. This service will cost money; but by membership drives and fair sharing of costs, by skillful planning and by competent administration, many a trade association can be transformed into an invaluable agency for the collection, co-ordination and distribution of several kinds of facts and figures which have significance to executives charged with production or sales. With a few exceptions, the long dependence of business on government for such data has made extensive private development of national statistical material needless until now. But those associations which at this time can induce members to co-operate to that end will have strengthened their place in American economy.

—N. Y. Sun



# Greenwich Greets New Era

**Utility's anniversary featured  
by opening headquarters and  
display room showing advan-  
tages of modern gas service**

A NEW and modern headquarters, one of the most conveniently arranged utility buildings in the country, was the stand-out attraction at the twenty-first anniversary celebration of the Greenwich (Conn.) Gas Co., Friday, September 12.

Eben F. Putnam, president and general manager, explained that the opening of the new structure is tied in with a comprehensive program which the utility has developed in preparation for an era of growth expected next spring when home building starts on a large scale.

The company's new home is provided with a large number of conveniences which should make it popular with customers and employees alike. Although located in the center of the business district, it is readily accessible with a parking space in the rear accommodating 100 cars. The back entrance is as pleasant to en- (Continued on page 462)



New Freedom Gas Kitchen on display floor has automatic ventilation system over gas range



Lighted display window of Greenwich Gas Co. is a symbol of efficient utility service



Daytime view of new building which is seen as a guide to business area of the future



Two of the three all-gas kitchens are seen at the left. The modern display floor employs the newest fluorescent lighting and an impressive array of plate glass windows at rear



General view of a section of new sales floor with large exhibit of automatic gas ranges and gas refrigerators. Dehumidification and air conditioning also are controlled by gas

# Production of High B.t.u. Gas

An outline of past and present studies on the problem of producing high B.t.u. gas in large quantities with particular attention devoted to peak or stand-by plants

THE problem of producing high B.t.u. gas in large quantities first arose in the early 1930's with the extension and expansion of natural gas pipelines into territories remote from natural gas sources of supply. In the early years the problem of producing this high B.t.u. gas was closely associated with the necessity of having stand-by plants for the production of gas when and if there should be a failure in natural gas supplies. In the last few years the growth of the gas business and the difficulties of obtaining steel for additional natural gas pipelines have made it necessary to consider the production of high B.t.u. gas for rather extended peak load operation.

Intermediate problems of short peak load supply to improve the load factor on the natural gas lines have existed and will continue to be with us even when additional steel is available for new pipelines.

During recent years studies by many engineers in the industry have indicated that "blue gas" is one of the most expensive gases that we produce when figured on a thermal basis. These studies have shown that the production of a high B.t.u. gas in certain manufactured gas territories will not only reduce the cost per therm of gas produced but will permit about 100 percent increase in the capacity of plant auxiliary equipment and of the distribution system.

When considering the type of high B.t.u. gas that will be produced, first attention must be given to the raw material that will be used. William Fraser of Detroit speaks of this problem as one of "B.t.u. storage" and this phrase gives a clear picture of the problem if the words "and release" are added. A material must be selected that can be stored and released in usable form as quickly and as conveniently as possible.

BY EDWIN L. HALL

*Coordinator, Gas Production Research Committee, Manufactured Gas Department, American Gas Association*

In considering processes for stand-by or peak load gas the following characteristics must be evaluated.

- (1) Is the process easily operated, requiring a minimum of trained personnel?
- (2) Can the process be quickly and easily started up from an inactive condition?
- (3) Does it utilize present equipment to a maximum advantage?
- (4) Does it utilize materials that are relatively cheap and quickly available? Availability of materials is of primary consideration to plants used for peak load gas.

The question of the cost of materials must, of course, be balanced against plant requirements and the amount of gas that may be produced. One important economic consideration that must be kept in mind in evaluating these plants is that they will operate for only a few days a year and in general one plant is just as good as another when it is not producing gas.

## LP-Gases

The use of LP air-gas has been widely adopted throughout the gas industry because this system meets the requirements of easy operation, quick starting and relatively low cost materials. The disadvantage of LP air-gas is that there are serious limitations on the amount of this gas that may be used to supplement the base gas supply.

LP-gases can be used in many ways other than mixed with air. They may be used as raw materials for reforming either in a standard water gas set or in a catalytic reforming unit, and will be used this way to better advantage in the future. They can also be used to cold enrich other gases such as carburetted water gas. There are situations where LP air plants have been installed

to supplement carburetted water gas capacity, in some of these plants the use of LP-gas for cold enriching low B.t.u. carburetted water gas made by the use of blow-run and reforming might be more advantageous than to make a propane-air gas.

LP-gases may be reformed in a standard water gas set to produce a gas of any required thermal value and burning characteristics. The techniques used for reforming natural gas and refinery oil gas can be directly applied to the reforming of LP-gases. At Waterbury, Conn., and Chester, Pa., successful demonstrations over long periods of time have established this point. Where water gas plants are available at suitable locations this thermal reforming of LP-gases is a very practical method of producing peak load gas that can be used in any amount for mixing with or supplementing the base gas.

## Catalytic Reforming

As our gas distribution systems are required to serve expanding markets we sometimes find that we must not only produce peak load gas but that this gas must be made in locations where there are no existing plants. The use of LP air is not an answer in these situations where all of the gas that is made must be 100 percent interchangeable with the base supply. For these conditions the use of a catalytic reforming process similar to that originally developed for the production of hydrogen from hydrocarbon gases such as natural gas, refinery oil gas or propane, appears to be very promising.

The Gas Production Research Committee of the American Gas Association has been investigating and testing modifications of this process. For the past two years these investigations have been carried out through the Institute of Gas Technology. A survey of existing processes that are used for the production of hydrogen was first made. Then some

Presented before Mid-West Gas Association, September 9, 1947.

laboratory tests were made to determine whether the processes or the catalysts used might be advantageously modified for gas making purposes. These tests included an attempt to develop sulfur resistant catalysts with the hope that these catalysts would extend the source of materials that might be used in the process.

During the past few months we have been operating a pilot catalytic reforming unit at the Chester plant of the Philadelphia Electric Co. Various catalysts have been tested in this unit and it has been successfully operated with propane from natural gas, with refinery propane and with purified and unpurified refinery oil gas. We expect to operate it on higher hydrocarbons including butane and kerosene vapors.

It has been found that relatively high capacities can be obtained when some air is admitted with the hydrocarbon gas and that this air has the additional advantage of permitting operation with sulfur containing crudes without damage to the catalyst.

Table 1 indicates the general characteristics of reformed propane gas with and without air.

TABLE NO. 1  
CATALYTIC REFORMED PROPANE GASES

	Steam Propane	Steam Air Propane
CO	19.6	14.0
H <sub>2</sub>	48.0	34.5
C <sub>2</sub> H <sub>6</sub>	31.0	31.7
Other Saturates	0.7	4.5
Unsaturates	—	0.5
CO <sub>2</sub>	0.7	2.7
O <sub>2</sub>	—	0.7
N <sub>2</sub>	—	11.4
Total	100.0	100.0
B.t.u.	1000	1000
Specific Gravity	.726	.865
Propane reformed cu.ft./M	89	75
Propane enriching cu.ft./M	310	317
Steam lb./M	25	24
Air cu.ft./M	—	145

The higher gravity of the steam-air-propane gas is not a particular disadvantage because we have found that the presence of nitrogen tends to counteract the relatively high hydrogen in these gases when they are used as a natural gas substitute. As a matter of fact, it appears from work at the A. G. A. Testing Laboratories that the presence of these inerts may be distinctly advantageous.

These catalytic units may be heated with any fluid fuel, either gas or oil. They require supplies of steam for gas making, water for cooling and electricity for power. Properly operated these plants produce no by-products and there is no problem of waste disposal. As presently designed they may be operated at pressures up to 35 pounds per square inch gauge.

It is difficult to speak of plant costs without causing some misunderstanding. For these plants the same cost of propane storage will be required as though the propane were used for the production of propane air gas and, in addition, the reforming furnace and auxiliary units must be supplied. General costs

on the order of \$70 per Mcf of installed daily capacity have been quoted to us. This figure is of interest only in that it indicates that these plants are relatively low cost units when compared with the cost of a complete carburetted water gas plant. On the other hand, they will probably always require relatively high priced materials, and if they are to be used for peak load only they will probably be less efficient thermally than carburetted water gas plants because the cost of heat recovery equipment will not be justified.

Three relatively large units for reforming propane to produce a substitute carburetted water gas are being installed by the Surface Combustion Corp.

TABLE 2  
HIGH B.T.U. GASES FROM GAS OIL OR DIESEL OIL

	San Rafael, Calif. Diesel Oil		Recircu- lated Oil Gas <sup>2</sup> Pettyjohn	Refrac- tory Screen <sup>3</sup> Process	Down Blast Process Blain <sup>4</sup>	Coke Fire <sup>5</sup> Detroit	Buffalo, Twin <sup>5</sup> Generator Process	
Analysis								
CO	1.8	3.2	2.8	5.4	.9	8.0	1.8	1.4
H <sub>2</sub>	14.0	21.7	31.0	27.7	22.9	30.0	11.5	10.5
Ills.	27.2	20.7	24.2	28.6	22.4	23.0	29.0	27.1
C <sub>2</sub> H <sub>6</sub>	—	—	—	4.9	—	4.0	2.2	2.0
CH <sub>4</sub>	48.6	48.0	33.8	28.5	42.7	26.0	31.4	31.0
CO <sub>2</sub>	1.4	1.9	2.6	2.0	1.6	1.2	2.7	2.9
O <sub>2</sub>	0.6	0.2	0.4	0.4	1.2	0.8	3.2	2.9
N <sub>2</sub>	6.4	4.3	5.2	2.5	8.3	7.0	18.2	22.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
B.t.u.	1085	975	1030	1100	970	940	1000	980
Sp.Gr.	.726	.661	.726	.740	.660	.680	.800	.840
<i>Products of Combustion and Air</i>								
CO	—	—	—	—	—	—	—	—
CO <sub>2</sub>	1.0	0.9	0.9	0.2	0.9	1.0	1.4	2.7
O <sub>2</sub>	0.6	0.2	0.4	0.4	1.2	0.8	3.2	2.9
N <sub>2</sub>	6.4	4.3	5.2	2.5	8.3	7.0	18.2	22.2
Total	8.0	5.4	6.5	3.1	10.4	8.8	22.8	27.8
<i>Blue Gas</i>								
CO	1.8	3.2	2.8	5.4	0.9	8.0	1.8	1.4
CO <sub>2</sub>	0.4	1.0	1.7	1.8	0.7	0.2	1.3	0.2
H <sub>2</sub>	2.6	5.2	6.2	9.0	2.5	8.4	4.4	1.8
Total	4.8	9.4	10.7	16.2	4.1	16.6	7.5	3.4
B.t.u.	15	27	29	47	11	53	20	10
<i>Oil Gas</i>								
H <sub>2</sub>	11.4	16.5	24.8	18.7	20.4	21.6	7.1	8.7
Ills.	27.2	20.7	24.2	28.6	22.4	23.0	29.0	27.1
O <sub>2</sub> H <sub>6</sub>	—	—	—	4.9	—	4.0	2.2	2.0
CH <sub>4</sub>	48.6	48.0	33.8	28.5	42.7	26.0	31.4	31.0
Total	87.2	85.2	82.8	80.7	85.5	74.6	69.7	68.8
<i>Oil Gas Analysis</i>								
H <sub>2</sub>	13.1	19.4	30.0	23.3	24.0	29.0	10.2	12.7
Ills.	31.2	24.3	29.2	35.4	26.1	30.8	41.5	39.4
C <sub>2</sub> H <sub>6</sub>	—	—	—	6.1	—	5.3	3.2	2.9
CH <sub>4</sub>	55.7	56.3	40.8	35.2	49.9	34.9	45.1	45.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
B.t.u. by difference	1220	1110	1210	1300	1120	1180	1410	1410

<sup>1</sup> Proceedings Pacific Coast Gas Association 1932—Harritt, Wills, Willien.

<sup>2</sup> A. G. A. Proceedings 1933.

<sup>3</sup> Gas Age Record June 18, 1932.

<sup>4</sup> A. G. A. Proceedings 1942.

<sup>5</sup> R. J. Chambers, 1947 A. G. A. Production & Chemical Conference.

in an outlying property of the Long Island Lighting Company. Within a few months we should have some operating results from these units. Other construction and engineering companies are interested in this development and ready to proceed when the gas companies indicate their interest in these plants.

## Gas Oils

When natural gas was first introduced most properties had oil gas plants or carburetted water gas plants that could be used for stand-by. From 1932 to date the *A.G.A. Proceedings* are filled with articles describing methods that were used for producing a substitute high B.t.u. gas.

In 1934 Leon J. Willien presented a paper entitled "Standby Gas." Mr. Willien's paper not only reviewed various processes but included an excellent bibliography of the publications up to 1934. More recently a report of the High B.t.u. Gas Subcommittee presented at the A. G. A. Production and Chemical Conference in June 1944 made a rather complete survey of methods in use at that time.

Most of the early attempts to produce a substitute gas were aimed at obtaining a gas about the same specific gravity as the natural gas. These attempts frequently developed operating conditions that over-cracked the oil and resulted in tar, pitch and lampblack troubles.

In carburetted water gas plants it was natural to continue the use of coal or coke as a source of heat since the original operating personnel were available. As time went on less skilled help was

available and the problem of fire cleaning and skilled water gas operators became a major consideration. For that reason more and more of these plants are changing their equipment to oil or tar firing. Processes that use liquid fuel include the twin generator process, the Pacific Coast process, the up-blast process, the down-blast process, the refractory screen process and the recirculated oil gas process.

Table 2 indicates some of the gases produced by these various processes.

It will be noted from the table that as would be expected the coke fire produces the most carbon monoxide in the finished gas. It will also be noted that the B.t.u. of the oil gas is from 1,100 to 1,400 B.t.u. per cubic foot. Some tests have been made where the oil gas was as low as 800 to 900 B.t.u. per cubic foot but in these cases trouble with pitch and lampblack was reported. In other work the oil gas has been reported as high as 1,600 B.t.u. and was diluted with products of combustion to produce about 1,000 B.t.u. make gas. Except for the cases where either a refractory screen or a coke fire is used, the amount of blue gas tends to be small, usually less than ten percent.

Table 3 shows Podbielniak's analysis of some of these high B.t.u. gases. When the B.t.u. is decreased there is a tendency for the methane and hydrogen to increase. Some of the illuminants, ethylene and propylene, etc., decrease with increased cracking but the compounds including  $C_4$ 's and higher show a definite increase.

This tendency for the olefins to decrease would seem to indicate that higher cracking temperatures would produce lower B.t.u. gases that might be more acceptable as natural gas substitutes. This would be true if the gases containing four or more carbon atoms did not increase with increasing temperature or decreasing B.t.u. in this cracking range. Tests have shown that benzene, for example, increases with the temperature of cracking through this range, and benzene is one of the worst offenders from the standpoint of yellow smoky flames. There is some indication that a reasonable amount of blow-run gases or inerts will actually be beneficial in slowing down the flame of these high hydrogen substitute gases when they are used on natural gas burners.

In some locations it has been necessary to supply 100 percent high B.t.u. oil gas as a replacement gas for natural gas. In general, most operators believe

TABLE NO. 3  
HIGH B.T.U. OIL GASES  
PODBIELNIAK ANALYSIS

Analysis	Up-Blast Process <sup>1</sup>	Private Reference		
CO	2.6	0.9	1.3	1.1
H <sub>2</sub>	24.2	19.3	20.0	22.4
C <sub>2</sub> H <sub>4</sub>	16.4	20.8	19.8	17.4
C <sub>2</sub> H <sub>6</sub>	1.1	6.9	3.1	2.3
CH <sub>4</sub>	43.8	33.5	40.0	39.2
C <sub>3</sub> H <sub>8</sub>	2.2	3.9	2.9	2.5
C <sub>3</sub> H <sub>6</sub>		0.8	0.2	0.2
C <sub>4</sub> 's+	3.6	4.7	5.2	7.5
CO <sub>2</sub>	1.1	2.7	2.3	2.1
O <sub>2</sub>	1.0	0.5	0.4	0.7
N <sub>2</sub>	4.0	6.0	4.8	4.6
Total	100.0	100.0	100.0	100.0
B.t.u.	977	1265	1220	1149
Sp. Gr.	.633	.852	.792	.751

<sup>1</sup> A. G. A. Proceedings 1942.

that none of these gases are completely satisfactory when used for 100 percent replacement of natural gas. They can, however, be used with entire satisfaction to supplement natural gas supplies.

Most operators have reported results that indicate from ten to 12 gallons of make oil per Mcf of 1,000 B.t.u. gas and one to two gallons of heating oil per Mcf of this gas. The amount of oil required for make oil will be dependent upon the character of the oil used and the gas yield per gallon, assuming good cracking conditions. The amount of heating oil will depend upon the amount of carbon left upon the checker-brick during the oil cracking operation and upon the temperatures of the gases leaving the set.

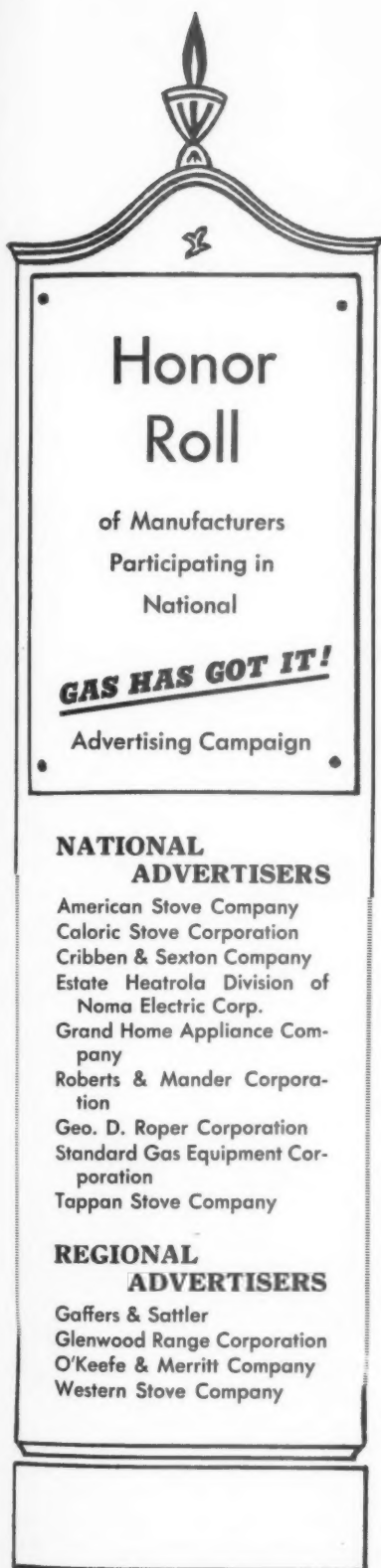
In one of the first papers presented to the A. G. A. by Frank Wills in 1933, "Gas Plants as Stand-by for Natural Gas Transmission Lines," Mr. Wills said, "The capacity of an oil gas generator is controlled by the few top courses of the make chamber." He went on to describe proposals for adding capacity by using more make chambers in the primary shell. This experience has been verified by other operators who have modified carburetted water gas sets for this purpose. In general they have found that their superheater capacity is adequate but more surface is required for the initial vaporization and cracking of the oil. These requirements have resulted in the development of the up-blast process, the down-blast process and the twin (Continued on page 464)

## Holdings

● After the occupation (of Germany) it was found that storage holders were practically all destroyed or damaged. Of 54 M.A.N. holders in the Ruhr with a total capacity of 3.92 million cubic meters, 23 were completely destroyed and none were workable, but there are now nine working with a capacity of 381,000 cubic meters. The largest holders useful to the grid supply with a total capacity of about 2.25 million cubic meters were more than 50 percent destroyed, and the remainder so damaged as to require very extensive repairs. Most of these holders were in operation throughout the war and there is no record of any explosions arising from war damage.

—London, England, *Gas Journal*





*Estate*  
**ROPER**  
*Quality*  
*Glenwood*  
*Western-Holly*

*Magic Chef*  
*Grand*  
  


*Caloric*

**GAFFERS & SATTLER**

**SGE DRIOLE**

**TAPPAN**

#### TEAMWORK

DURING its twelfth year of national advertising beginning October 1, 1947, the American Gas Association in co-operation with certain manufacturers of gas ranges built to "CP" standards and supported by gas utilities and dealers at point-of-sale outlets, will sponsor an enlarged and integrated campaign of national and regional advertising unique in the annals of gas industry promotion as well as in the field of trade association advertising.

The theme of the campaign is "The New Automatic Gas Ranges Are Really New." The slogan:

#### GAS HAS GOT IT!

One feature which distinguishes this campaign from preceding ones is the showing of actual models of automatic gas ranges and specific brand name identification of those ranges in A. G. A. national advertising. The volume of A. G. A. advertising space devoted to this purpose will be in proportion to the estimated volume of national or regional advertising which manufacturers have pledged to use for the coming year.

The advertising to be sponsored by A. G. A. and independently by participating manufacturers will appear in the most powerful opinion-forming magazines in America.

The adjacent Honor Roll includes as of September 18 the names of 13 manufacturers of ranges built to "CP" standards. They are likely to be joined by others who have until November 30 to act. Nine of these 13 present participants will undertake national advertising during the coming 12 months, with an estimated expenditure of \$1,225,000. This is three times the volume of national consumer advertising which appeared last year over the names of manufacturers of gas ranges built to "CP" standards. Four other manufacturers who will do regional advertising to cover their areas of distribution estimate their expenditures at \$370,000. Grand total for both groups is \$1,595,000.

This campaign is the final result of the recommendations of a special reviewing com-

mittee that all promotional activities of the Association such as national advertising, special promotional work, Residential and Commercial Section activities, and publicity, which hitherto operated under the jurisdiction of separate committees, should be completely integrated under a General Promotional Planning Committee. This latter group has the enlarged responsibility for the general planning and integration of these activities with each other and also with those of gas companies and manufacturers.

The basic premise of the campaign is that every step in the selling process is interrelated and should be treated as such in the Association's activities, as well as those of its member companies. This means that the consumer advertising, point-of-sale material, and all other promotional activities will be planned as a whole, and built around the same basic ideas in the future. Hence the promotional program of the gas industry and all of its units will be headed in the same direction and more work will result from each dollar spent.





Chicago meeting, led by H. D. Valentine, The Peoples Gas Light & Coke Co., marshalled heavy support for the campaign. "We know that gas has had it for many years," the chairman declared, "but somewhere along the way we have forgotten to tell our customers about it." Major participants included (left to right): A. E. Hatley, Central Indiana Gas Co., Muncie; John J. Brandt, Cribben & Sexton Co., Chicago; Wallace M. Chamberlain, Michigan Consolidated Gas Co., Grand Rapids, and J. E. Humphreys, The Ohio Fuel Gas Co., Columbus



## Coast-to-Coast Gas



James I. Gorton, director of "CP" promotion, G.A.M.A., outlined gas range manufacturers' present and future promotional plans during the afternoon session of the New York meeting

MORE than 1,700 gas utility men and manufacturers' representatives, meeting at 11 regional "Gas Has Got It" meetings throughout the country, have contributed a rousing send-off to the gas industry's first co-ordinated advertising and promotional campaign.

The "million dollar" industry-wide effort is being directed by the American Gas Association to acquaint the public with the features of modern automatic gas ranges and to stimulate replacement of the more than 12.5 million outmoded gas ranges now on utility lines. No campaign in the 11 years of A. G. A. national advertising has created such en-



Hugh H. Cathrell, The Brooklyn Union Gas Co., discussed Roper Survey at New York meeting



Chester S. Stackpole, Consolidated Gas Electric Light & Power Co. of Baltimore, ably directed the large session for the Middle Atlantic States which was held in New York



Coached only once by Chairman O. R. Doerr, Pacific Gas & Electric Co. (third from left), an enthusiastic gathering at the San Francisco meeting chorused, "Gas Has Got It!" Playing major parts in the session were, l. to r.: Louis Wollenberger, Coast Counties Gas & Electric Co., Santa Cruz; Jim Grabam, Jr., James Grabam Mfg. Co., Newark, Calif.; Ed Kearns, P.C.G.A.; Harvey Edmonds, Coast Counties Gas & Electric Co.; John H. White, A. G. A.; and Clifford Johnstone, P.C.G.A. Robert R. Gros, Pacific Gas & Electric Co., was also active

## Advertising Campaign Off to Fast Start

thusiasm throughout the industry as this all-out drive for modern, automatic gas ranges built to "CP" standards.

The 11 regional meetings were designed to step into high gear plans for local tie-in with the campaign. Valuable support was supplied by the Southern Gas Association in the south and southwest, the Pacific Coast Gas Association in the far west, and the New England Gas Association in the northeast.

The industry received its first initiation in details of the "Gas Has Got It" campaign at an A.G.A.-S.G.A. sponsored meeting in Jackson, Miss., August 20. D. W. Reeves, Oklahoma Natural Gas Co., Tulsa, presided as chairman.

The promotional front-line then switched to Minneapolis on September 2 where Richard Bennett substituted for Chairman W. L. Hayes, Montana-Dakota Utilities Co., at a large and impressive meeting.

The Portland (Ore.) Gas & Coke Company's "Hospitality House" was the scene of another active meeting the same day. R. G. Barnett, of the utility, was chairman of the promotional gathering which was sponsored jointly by the A. G. A. and P. C. G. A. Neighboring states and British Columbia were represented. Paul B. McKee, president of the local utility, was impromptu speaker



Atlanta speakers (l. to r.): Clifford E. Hall, A. G. A.; W. H. Ligon, S. G. A.; Carl H. Horne, Alabama Gas Co.; Gussie O. Jones and J. W. Lea, chairman, both Atlanta Gas Light Co.; James M. Floyd, Lone Star Gas Co., Dallas, and L. L. Peters, American Stove Company



Executives from seven southeastern states attended the Atlanta "Gas Has Got It" meeting



View of Boston meeting directed by J. A. Hiller, Portland (Me.) Gas Light Company. Speakers included J. J. Quinn, Boston Consolidated Gas Co.; H. Carl Wolf and H. Vinton Potter, A. G. A.; Malcolm Leach, Glenwood Range Co., Taunton. 43 gas company managers attended



M. H. North, Oklahoma Natural Gas Co., Tulsa, summarizes publicity program during Dallas meeting. Every state manager in the region attended and was introduced to the delegates



L. L. Baxter (left) and Robert R. Suttle represented the S.G.A. at Dallas. Dean A. Strickland, United Gas Corp. (right) summarized the advertising side of the nationwide campaign



at the Portland meeting, lauding the gas industry for launching such a powerful promotional campaign at a time when salesmanship is coming into its own.

Thereafter, "Gas Has Got It" meetings followed in quick succession. Representatives from the Middle Atlantic States gathered in New York, September 3, under the chairmanship of C. S. Stackpole, Consolidated Gas Electric Light & Power Co. of Baltimore. On September 4, Chicago was the meeting site with H. D. Valentine, The Peoples Gas Light & Coke Co., presiding. The following day a joint A.G.A.-P.C.G.A. gathering was held in the auditorium of the Pacific Gas & Electric Co., San Francisco, with O. R. Doerr of that utility officiating.

September 8 was a major milestone in pre-campaign activity with three meetings underway. Probably the largest of all the 11 regional meetings was held in Dallas under joint A.G.A.-S.G.A. sponsorship. J. R. Guidroz, New Orleans Public Service Inc., presided. In Kansas City, Mo., George D. Wells, The Gas Service Co., Topeka, officiated at an active meeting. In Los Angeles an interested gathering was held under the chairmanship of N. R. McKee, vice-president, Southern Counties Gas Company.

The final meetings of the series were

held in Atlanta, Ga., September 10, and Boston, September 11. The former was a joint A.G.A.-S.G.A. affair and was directed by J. W. Lea, Atlanta Gas Light Company. The wind-up meeting was A.G.A.-N.E.G.A. sponsored with J. A. Hiller, Portland (Me.) Gas Light Co., presiding.

Highly significant was the large percentage of range manufacturers present at these 11 send-off meetings. The tremendous mushrooming effect of the entire "Gas Has Got It" program was clearly demonstrated to regional audiences from every possible advertising, publicity, and promotional tie-in angle.

Individual chairmen hammered home the point that the present long-range campaign is being forged to meet "the hard cold fact" that gas industry customers "just do not know of the features and advantages of modern gas service, particularly modern gas cooking." Other speakers explained what is being done to correct this situation.

Opening speakers analyzed the returns which the five billion dollar gas industry has received from the Elmo Roper Survey. The nine points upon which women base their choice of cooking equipment were treated one by one, and for each point under consideration it was shown that beyond doubt "Gas Has Got It!"



Frank C. Smith, Houston Natural Gas Corp., presenting summary of Roper Survey at first regional "Gas Has Got It" meeting which was held in Jackson, D. W. Reeves, Oklahoma Natural Gas Co., Tulsa, presided



Principals at Los Angeles get-together included the following gas men (left to right): J. E. Kern, P.C.G.A.; R. J. Phillips, San Diego Gas & Electric Co.; J. H. White, Jr., A. G. A.; J. S. Spaulding, Southern California Gas Co., Los Angeles; Forrest Raymond, San Diego Gas & Electric Co., and N. R. McKee, Southern Counties Gas Co., Los Angeles, chairman



Otto C. Mauthe, Southern California Gas Co.; J. H. White, Jr., A. G. A.; N. R. McKee, chairman; W. M. Jacobs, Southern California Gas Co., and C. H. Potter, Southern Counties

Other speakers declared that "the millions of outmoded, obsolete gas ranges in daily use constitute the greatest and most effective body of salesmen competition has."

The 1947-48 "Gas Has Got It" campaign was presented as a three-way offensive. Spearhead of the industry-wide effort will be the A. G. A. national advertising program which will concentrate 98 million messages in ten national magazines by the end of 1947. This will be augmented by an increasing volume

of national and regional advertising by "CP" manufacturers and expanded at point of sale by gas companies, distributors and dealers in local advertising and promotional activities.

Opening wedge in the A. G. A. drive will be the concentrated \$200,000 advertising promotion during the remainder of this year. A total of \$600,000 of Association funds has been set aside for the entire year's campaign.

The Association's own advertising



Portland speakers (front row, left to right): John H. White, Jr., A. G. A.; J. E. Kern, P.C.G.A.; R. G. Barnett, Portland Gas & Coke Co., chairman; and C. W. Steele and Fred M. Kimball, also of the Portland utility. (Back row) Alvin R. Bravender, Tappan Stove Co., Mansfield, O.; E. J. Ludeman, Washington Gas & Electric Co., Tacoma; N. O. Pratt, Seattle Gas Co., and W. A. Bitcon, British Columbia Electric Railway Co., Ltd., Vancouver





Harold E. Jalass (front row, third from right) general sales manager, Cribben & Sexton Co., Chicago, during recent "Gas Has Got It" promotional conferences in Honolulu, Hawaii, with officials and employees of the Honolulu Gas Company. John J. Winn, Jr., the utility's vice-president & general manager is next to Mr. Jalass. D. N. Shepard, sales supervisor, at far right

space will be allotted to manufacturers of gas ranges built to "CP" standards where the manufacturer's planned national ad expenditure exceeds \$50,000. The Association will offer 50 cents of its own space for each dollar the manufacturer spends for national advertising with a ceiling of \$150,000 worth of Association space. Manufacturers who advertise regionally are offered 25 cents of A. G. A. space for each dollar they spend.

Blow-ups of the first six range ads appearing in the fall series were shown at the meetings and heavy emphasis was placed upon the fact that the campaign will mention the brand names of contributing "CP" manufacturers.

Publicity presentations before the regional gatherings showed that the slogan of the campaign will be spread across the nation through every possible means. The aid of gas utility members is being solicited particularly in the ra-

dio and newspaper fields.

At least one member of the A. G. A. Promotional Bureau outlined at each meeting the unprecedented effort being made along promotional lines. Blow-ups of the A. G. A.-designed advertising and promotional work kit of tie-in materials were analyzed page by page. Sample radio programs, newspaper materials, and a multitudinous array of tie-in suggestions were included. Individual kits were made available during or after each meeting.

Indications of outstanding co-operation already achieved throughout the industry were shown by range manufacturers' representatives. Speakers emphasized that the gas industry, among the first American industries to provide uniform nation-wide safety standards for the protection of the public and first to provide an unbiased buying guide to high standards of convenience and performance, is now first again in develop-

ing a unified industry-wide postwar promotional program and in forcibly bringing to the attention of its customers the advantages of its postwar products.

Addressing the September 3 meeting in New York, James I. Gorton, Gas Appliance Manufacturers Association, demonstrated the importance of brand names and buying guides. Despite the fact that shortages are forcing range manufacturers to operate almost on a day-to-day basis, he said, the "Gas Has Got It" campaign is ideally timed.

"Sales are made in people's minds months, even years before a pencil touches an order blank."

Other speakers backed up this statement by declaring that the present long range campaign is designed to educate the consumer so that when he does become a buyer he will think automatically of a gas range built to "CP" standards.

One manufacturer's representative declared that "no other industry has the market potential and the product to meet that potential which the gas industry has through the 'CP' program."

Following active discussion periods, the A. G. A. full-color motion picture, "Winning Seals of Approval" was presented together with a sample recording of a proposed Mary Margaret McBride radio program featuring interviews of celebrities.

With 11 preliminary salvos already fired in the "Gas Has Got It" drive, the next event will be full advertising broadsides on a national scale by A. G. A., range manufacturers, and G.A.M.A.



Delegates luncheon between sessions of Kansas City, Mo., "Gas Has Got It" meeting which was directed by George D. Wells, The Gas Service Co., Topeka. Principal speakers at the meeting included the following: R. J. Vandagriff, The Laclede Gas Light Co., St. Louis, Mo.; R. T. Ratliff, The Gas Service Co.; R. D. Lewis, Laclede; H. Vinton Potter, A. G. A., and E. Carl Sorby, George D. Roper Corp., Rockford



# Research In Home Comfort

Laboratories conducting projects which prepare the way for further integration of gas equipment into Nation's homes

THE Committee on Domestic Gas Research of the American Gas Association is sponsoring a number of projects keyed to aiding the tremendous swing to gas house heating which has developed in the past few years.

Carried on as part of the Association's promotional, advertising and research plan, the projects have been initiated in order to further implement technical advances, providing basic information for improving central heating appliance designs and meeting modern home construction needs. Maximum comfort for the consumer and home owner is the thought behind the program.

Clean and versatile in their application to home heating requirements and compact in design, gas heating appliances have contributed substantially to the success of such present day accomplishments as attractive recreation and utility rooms, modern kitchens, and small homes without basements or utility rooms. Present research is laying the foundation for further integration of gas equipment into the American home and consequently further advances in both heating and home design.

Figure 1 shows a scene at the A. G. A. Testing Laboratories where basic data are being sought to provide a technical diagnosis of what transpires in and around the combustion zone of a central heating appliance. Concerned with determining methods of accurately predicting and charting heat transfer performance in that zone, the project explores a field in which at present empirical design information exists but little is available in the way of basic



*Special combustion chamber constructed for analysis of heat transfer in gas furnaces and its translation into mathematical relationship to individual elements of burner design*

technological relationships of the many design factors involved. In the true sense of the word it is one of the most fundamental research studies ever undertaken at the Laboratories.

Figure 2 shows one of a series of contemporary gas heating furnaces, the performance of which is being checked under varying conditions of controlled heat output. Valuable data are recorded relative to multi-stage burner operation and other practical factors directly affecting modern heating techniques such as continuous blower operation, low

temperature air flow delivery, improved cycling and employment of multi-speed fans. Performance, efficiency and combustion are charted under a wide range of conditions. This fits in with a current trend toward modulated heat control.

Figure 3 shows a study of a furnace installed in a confined or crowded space as represented by a closet or attic type heater installation for a small home. This is quite a problem in all sections of the country. Proper location of air openings for both burner combustion and especially ventilation of the con-

## Initiative

● Our economy has the tremendous advantage of possessing three and a half million business enterprises outside of agriculture and about six million business enterprises in agriculture. This means that the American economy has nearly ten million places where innovations may be authorized. Have you ever thought of that? Ten million places where experiments may be tried, where no further authority is needed to authorize an experiment. Our economy operates under about ten million separate private business budgets. No regimented

economy can hope to compete in dynamic drive with an economy which possesses nearly ten million independent centers of initiative. I don't see that the British or the Russians have a chance. They will fall farther and farther behind unless in some way or other, they can multiply the centers of initiative, increase the numbers of the authorities who can authorize innovations.

One may expect the American economy to solve the problem of production far more effectively than any other economy.

—Prof. Slichter, Harvard



*Studying effect of modulated gas input rates on contemporary gas house heating furnaces*

financed spaces are under investigation. Proper shape and size of the openings for maximum performance and proper clearance from walls and floors for safety and ambient temperature rise are other important phases of this important project.

Two research bulletins recently released and published present additional data applicable to central gas heating appliance design. Bulletin No. 41, "Research in Fundamentals of Noise of Extinction of Large Gas Burners," develops a mathematical relationship for burner design factors affecting noise level, and Bulletin No. 42, "A Study of Bimetallic Thermal Elements," presents data on experimental bimetal elements used as actuating members of automatic pilot operated safety controls.

Two research reports which likewise concern central heating design have been published recently. Report 1060-B, "Field Study of Domestic Hot Water Service from Gas-fired Boilers," is devoted to units applicable to domestic heating systems of the steam and hot water types, sometimes known in the field as a summer-winter hookup.

Report 1080, "Research in Effects of Ambient Pressures in Combustion Chambers of Contemporary Appliances on Primary Air Injection, Flame and Other Gas Burner Operating Characteristics," supplements data on temperature effects on these factors previously published. They were reported in Bulletin No. 34, "Temperature as a Factor in the Design of Aerated Gas Burners," and Bulletin No. 37, "Primary Air Injection Characteristics of Atmospheric Gas Burners," Part II. With this new report this im-

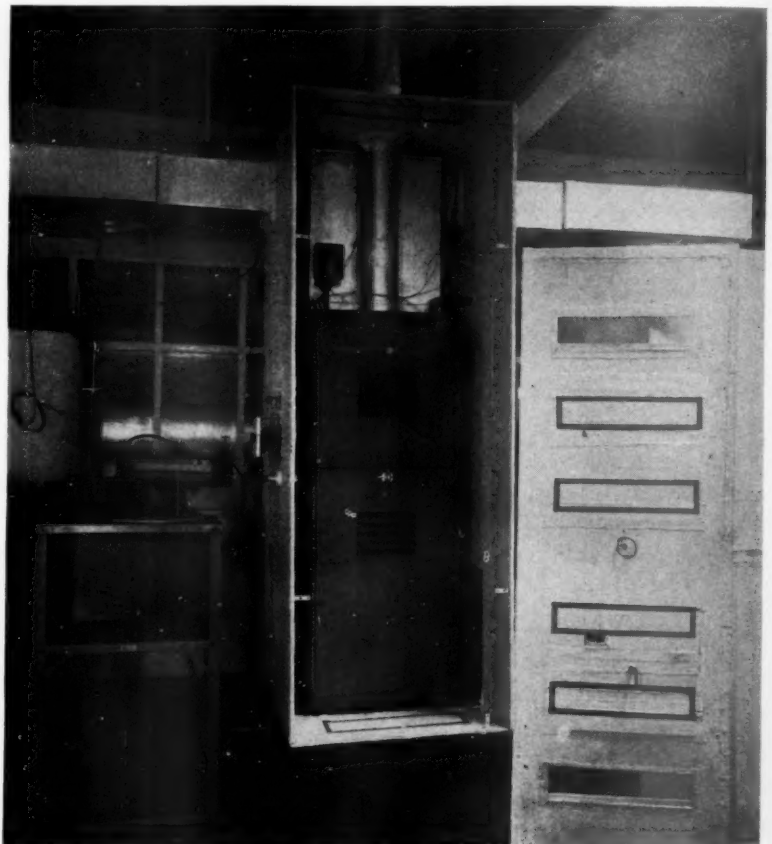
portant gas burner research project is completed.

Other important projects sponsored by the Committee on Domestic Gas Research and bearing on the advancement of central heating appliance design are in progress at Battelle Memorial Insti-

tute, Purdue Research Foundation and the Institute of Gas Technology.

Battelle Memorial Institute recently published a literature review on corrosion of metals and materials by flue gas condensate. This review, for the first time, gathers together all available data for ready comparison of the work of different investigators as the first step towards comprehensive investigation of the problem, which is now under way. At Purdue Research Foundation moisture levels are being investigated with a view towards better home humidity control, and at the Institute of Gas Technology the possibility of the use of high temperature liquids and vapors for all household heating services is under investigation.

Thus a vast amount of technical information is being developed and compiled which will aid the gas industry in keeping the lead in the house heating field and in all likelihood will help pioneer new advances in comfort heating.



*Close-up of "high boy" type gas furnace installed in confined space showing various air openings under investigation by Laboratories' staff for maximum performance and safety*



Gas-fired switch heaters have completely melted the snow around the 12 moving parts of this double slip switch in main line service on the New Haven railroad at New Rochelle junction. A cross-over with the snow melted around its movable points is shown on track at left.

## Keeping Rail Lines Open

**Gas-fired switch heaters for removing snow and ice are supplanting former broom and shovel method on northern railroads**

AMERICAN railroading has made great strides through the years, but no one has yet devised any means of switching trains from one track to another without moving switch points.

Every railroader is familiar with the absolute necessity of keeping these switch points in working order in fair weather or foul. Many railroads in the northern part of the United States are turning to an ingenious device—the gas-fired switch heater—for fast, efficient removal of snow and ice. Gas supply in underground pipes not subject to storm hazards is a big factor in determining the use of this fuel under emergency conditions.

The engineer in his cab speeds the trailing train across the miles with the fullest confidence that the trackside signals, set in his favor, mean all-clear for complete security. He knows that every foot of rail is regularly tested, measured and observed by trustworthy track-walkers trained in their jobs.

When he approaches the classification yard with his freight or a terminal with his passenger train, he may wonder, when it is snowing heavily, whether he will have to pull up at a red light and wait while the switches are cleaned by hand or whether his route will be

cleared well in advance so that he can go through on time.

The gas-fired switch heater has proven so adequate and dependable in preventing the clogging of movable switch and crossover parts, that the old broom and shovel method which is dangerous, expensive and undependable, is on the way out.

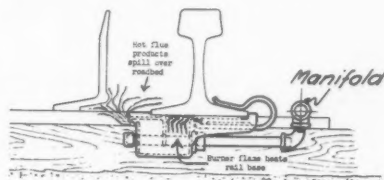
When yards and terminals are protected against snow and ice with gas-fired switch heaters, it is only necessary for the regular yard force to go from switch to switch at the first sign of a storm, turn on the gas and light the heaters. Gas will guard the switches until it is shut off after the storm.

With the growing use of Centralized Train Control, under which trains are switched and otherwise controlled from a point hundreds of miles distant, the gas-fired switch heater with automatic gas turn-on and automatic ignition should be a boon to railroad operating departments.

There are two general types of gas-fired switch heaters. One type is clamped directly to the underside of the rail, between each tie for the full length of the moving part. Seven burners on each side are needed for a No. 6 switch and corre-

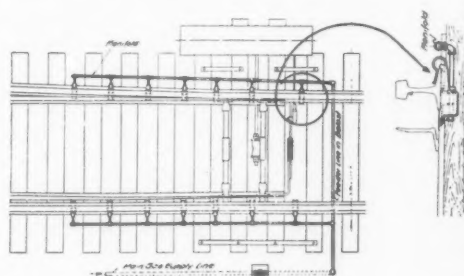


Typical gas-fired switch heater which can be clamped to a rail base. Gas flame heats rail base directly at square opening on top while flue products spill out from left underside.



*Heater for End Points.*

Type of gas fired switch heater designed so it can be mounted on the rail base and connected to the manifold by heavy duty hose.



A manifold is installed outside the stock rails on each side of this switch and a gas-fired switch heater is mounted between the ties.

spondingly more for longer switches up to 45-mile high speed turnouts.

Each heater consists of a tubular gas burner extending horizontally beneath the rail and (Continued on page 463)

## "Rubber Neck Line" Aids Biggest Inch Project

SEVERAL miles of the first long-distance natural gas transmission line laid in California are being pressed into service by the Southern California Gas Co. as a connection link to the 30-inch (Biggest Inch) Texas-California pipeline.

The original 12-inch line was built by the Midway Gas Co. in 1912 and nicknamed the "rubber neck line" because its joints were coupled together with steel couplings clamped around rubber gaskets. After 35 years of service it is in good condition, according to engineers and when reconditioned, wrapped and welded together in 40-foot lengths should give many more years of service.

## Blood Service Extended By New York Utility

A VOLUNTARY program whereby employees of the Consolidated Edison Co. of New York, Inc., may have their blood typed and Rh factor determined without fee or inconvenience to themselves has been announced by the employees' Mutual Aid Society of the company.

The project, according to William J. Honan, president of the Society, is believed to be the first of its kind ever attempted on such a large scale by any industrial group, and is scheduled to commence Tuesday, October 14, with completion anticipated by the end of the year, by which time more than 25,000 men and women will have been typed.

The blood typing program, which has full management approval, will be conducted dur-

ing regular working hours by mobile units comprising technicians of the Blood Bank of Queens County, Inc. Each individual thus typed will receive an identification card bearing his or her blood type and its Rh factor, as well as instructions on how blood may immediately be obtained in emergency through the Mutual Aid Society's Blood Bank.

Similar data will also be added to each employee's record. A master list on tabulat-

ing cards will be maintained by the society in order that calls for blood, particularly those involving infrequent blood types, may be met swiftly.

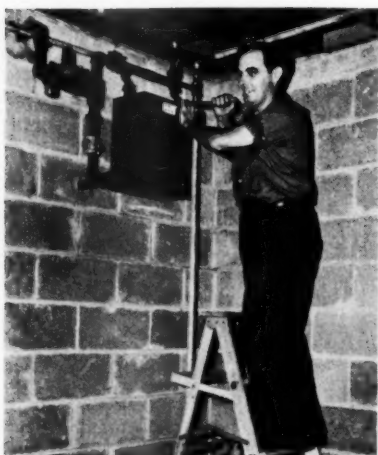
This program is a logical extension to the Blood Bank service established by the Society late in 1946, which has provided more than 836 pints of blood of the proper type and Rh factor for employees or dependent members of their immediate families.

## Indiana Gas Float Wins at Centennial



This unusual display sponsored by the Indiana Gas & Water Co., Inc., featuring the slogan, "GAS Does the Four Big Jobs Faster, Cleaner, Cheaper," was awarded the prize for the most interesting float in the Monon Centennial celebration held at New Albany, Ind., July 30. Two gas ranges with live models wearing abbreviated chef's costumes portrayed cooking, while a modern gas water heater with a live model in a bath tub represented water heating.

## Indianapolis Utility Sets Meter Record



Last valve on the 116,000th gas meter installed by the Citizens Gas & Coke Utility, Indianapolis, Ind., is turned by Odia Boston, customer service specialist. This alltime high is a 50 percent rise in meters since 1935. Gas mains have increased from 876 to 1,233 miles

## Columbia to Build Short Wave Network

THE Columbia gas system plans to establish a short wave radio network in five states, involving a \$200,000 investment by The Pittsburgh Group of affiliated gas companies, The Manufacturers Light & Heat Co., Pittsburgh, has announced.

Plans call for immediate construction of an initial group of transmitters. Emergency radio communication by the gas company will be on a requested assignment of 33.34 megacycles, in the 30-40 megacycle channel of frequency modulation reserved for power-utility services.

The radio network will be employed to improve the dispatching, control and operation activities related to more than 10,000 miles of natural gas production and transmission lines operated by the affiliated companies.

Major use of radio communication will be to link the offices of field superintendents and their scattered work crews in times of emergencies. At present there is no way for supervisors to quickly communicate with crews at work in outlying areas, nor for such gangs to communicate with gas com-

pany offices and shops. By 1951, an emergency radio communication system should adequately cover the various gas company territories in Pennsylvania, Ohio, New York, West Virginia and Maryland.

When the network is fully established, there will be 12 fixed stations at offices and shops, each having 250-watt output; 19 fixed stations of 50-watt output; five portable stations of 35-watt output for emergency field installation, and 100 mobile sets for sending and receiving from gas company cars and trucks.

According to Earl D. Clutter, gas company general superintendent, the emergency use of radio communication will expedite the dispatching of natural gas, particularly at peak load periods in the winter months.

"When pressures are below normal," commented Mr. Clutter, "and there is an immediate need for diverting the flow of gas to those localities in greatest need, we will be able to instantly talk with company trucks near the various valves along the pipelines."

"Another great advantage which the short wave radio will bring to gas users," ob-



served Mr. Clutter, "will be realized should disaster strike a community or area."

According to the gas company representative, there are now more than 100 companies licensed for emergency radio communication systems in the north central states. This constitutes about 25 percent of all the licenses in the power-utility classification in the United States.

A. B. Lauderbaugh, chief gas engineer, is in general charge of the design and installation of the short wave radio system which will begin operations early in November. David K. Ruth, radio engineer of the gas company, will supervise the emergency communications system.

## Gas Sales Show Gain for July

**T**OTAL sales of gas utility companies to ultimate consumers in July were 1,945,809,000 therms, an increase of 8.2 percent for the comparable month last year according to a tabulation released by the American Gas Association. The Association's index of total gas sales on July 31, 1947, stood at 198.8 percent of the 1935-1939 average. For the 12-month period ending July 31, 1947, total sales of gas were 28,331,526,000 therms, an increase of 10.4 percent over a year ago.

Sales of natural gas during July totaled 1,722,067,000 therms, a gain of 8.8 percent over July, 1946. The index of natural gas sales stood at 205.9 percent of the 1935-1939 average on July 31, 1947. For the 12-month period natural gas sales were 24,567,774,000 therms, an increase of ten percent over the like period a year earlier.

Manufactured gas sales aggregated 146,057,000 therms in July, up 1.7 percent over a year ago. The index of manufactured gas sales on July 31, 1947 stood at 149 percent of the 1935-1939 average. For 12 months manufactured gas sales amounted to 2,332,139,000 therms, a gain of 11 percent over last year.

Mixed gas sales for July were 77,685,000 therms, an increase of 7.1 percent over the like month in 1946, and the index of mixed gas sales stood at 176.3 percent of the 1935-1939 average on July 31, 1947. For the 12 months mixed gas sales aggregated 1,431,613,000 therms, a gain of 17.7 percent over the comparable period a year earlier.

## Appliance Notes

**A**N all-aluminum rangette is designed for use in small apartments, boats, trailers and cottages, weighs 60 pounds and operates on either bottled or natural city gas.

An interesting development for kitchen or back yard is a stainless steel barbecue broiler attachable to gas outlets or gas bottles. Nearly two pounds of meat can be cooked on the four 10-inch skewers simultaneously and burners are individually controlled to allow "rare" and "well-done" cooking at the same time, say the makers.

—Petroleum Newsnotes

## Con Edison "Point of Sales" Technique



Stressing "point of sales" methods, Consolidated Edison Co. of New York, Inc., recently placed this window display on the ground floor of its main office. The utility is known familiarly to its employees as "Con Edison" and the display text shows why it is a "good place to work." The last phrase was the theme of a newspaper ad series which ran last winter.

## Midwest Personnel Group Elects Myers



Vernon Myers

gas operations, Kansas Power and Light Co., Salina, Kan.

Other new officers are H. H. Duff, personnel director, Panhandle Eastern Pipe Line Co., Kansas City, vice-chairman, and R. L. Thomas, assistant secretary, Colorado Interstate Gas Co., Colorado Springs, secretary.

About 40 of the executives in charge of industrial relations of the gas companies in the midwest attended the conference in Colorado Springs at which the chairman, Mr. Sedgwick, presided. Kurwin R. Boyes, A. G. A. secretary, suggested increased emphasis on employee selection techniques; more effective training of employees and the organized recruitment and training of potential executives, both administrative and technical.

In an address of welcome, Robert W. Hendee, president, Colorado Interstate Gas Co.

and A. G. A. vice-president, stressed the value of the regional conferences in getting gas company personnel administrators personally acquainted for the free interchange of information on developments and for the intimate discussion of specific problems.

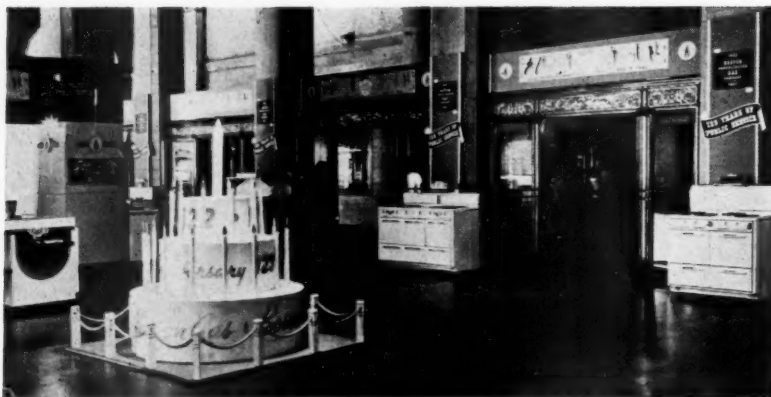
Fred R. Rauch, vice-president, The Cincinnati Gas and Electric Co. and chairman of the A. G. A. Personnel Committee, gave an informative talk on "Some Pointers on Negotiations," based on his many years of experience. The lengthy discussion which followed brought out many other significant experiences.

Following the luncheon, an informative report on the Estes Park Conference on Human Relations was submitted by R. L. Thomas, the newly elected secretary of the conference. V. H. Luneborg, personnel director, Arkansas Natural Gas Corp. and secretary of the A. G. A. Southwest Personnel Conference reviewed the plans for the A. G. A. National Personnel Conference to be held in Dallas, November 19 and 20, and urged the attendance of a good representation from the Midwest group.

As customary, considerable time was devoted to the reporting and discussion of developments in employee and supervisory training; employee benefits including insurance, vacations, sick leave and retirement plans, wage negotiations, union contracts, etc.

The appreciation of the Conference was extended to R. L. Thomas and J. D. Jones of Colorado Springs for their arrangements contributing to the success of the meeting.

## Boston Consolidated Marks Birthday



Extensive decoration of the Boston Consolidated Gas Company's main office and branch stores, was a part of the utility's 125th anniversary celebration. Store windows were decorated with "then and now" displays, the company's customer house organ, Boston Gas News, appearing in double-size and color gave a cross-section picture of the firm today, leading into a presentation of postwar appliances, accompanied by A. G. A.'s "Miss Flame." The event was signified on the company's radio show, on truck posters, billboards, and in the employee publication

### "Inflammable Air"

THE following excerpt is from *Richmond—Her Past and Present* by W. Asbury Christian, pp. 54-55.

"... This year 1802 there was a most unique show. Benjamin Henfrey, who had come to Richmond to examine mineral lands, advertised that he would exhibit his new invention, 'Inflammable Air.' The admission was 50 cents. A large crowd attended, and he exhibited to them the 'New Light,' made in a tea kettle from wood and pit-coal. The people were entertained with the new invention, but few believed it more than a toy.

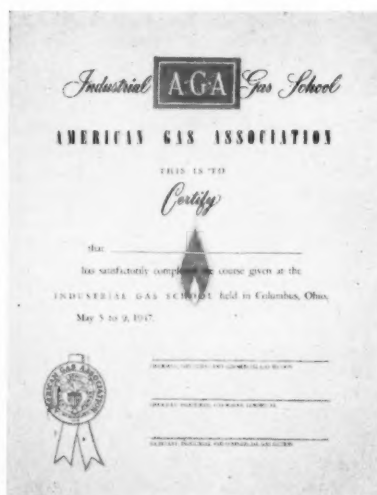
"He made various experiments with it, and to satisfy the people that it was not a fraud he called in the following citizens to witness the demonstration: Chancellor George Wythe, John Warden, William Hay, Edward Carrington, John Foster (mayor), Dr. J. McClurg, William Richardson, Rev. John Buchanan, Henry Banks, John Graham, Charles T. Macmurdo, George Fisher, William Booker, and Benjamin Du Val. They testified that they had attended the experiment and that they believed that 'The New Light' could be advantageously used for lighting houses, octagon light-house, manufacturers, and domestic uses.

"'We are decidedly of the opinion,' they said at the close of their statement, 'that gas produced from pit-coal yields a more mild and uniform light than that from wood, and by comparison with the light from animal oil and tallow it appears to us, as it proceeded from a tube of about one fourth of an inch in diameter, to be nearly in the proportion of one to 20. We have witnessed with pleasure the gas applied to cooking purposes. The Apparatus is on a simple plan and not expensive.'

"Henfrey was attacked in the newspapers as a fraud on account of the claims which he made for the 'New Light.' Notwithstanding

this, a few months later a subscription was started for an octagon light tower, and the following year it was built on Main Street at the highest point near the American Hotel. The tower was 40 feet high, surmounted by a large lantern with many jets. The jets were fed from a still in the cellar, in which the gas was generated. The first night large crowds came out to see the 'New Light.' It was successful at first, but did not last long, and Main Street went back to the lamp-posts, which, with animal oil, were sufficient to make darkness visible. . . ."

### Industrial Gas Diplomas



This attractive certificate has been mailed to the more than 250 men who took the exams at the Industrial Gas School in Washington, D. C., last spring. More than half received a mark of 90 percent or better

## Convention Calendar

### OCTOBER

- 6-8 •A. G. A. Annual Convention, Cleveland, Ohio
- 6-10 •National Safety Congress & Exposition, Chicago, Ill.
- 20-24 •National Metal Congress & Exposition, Amphitheater, Chicago, Ill. (A. G. A. will exhibit)
- 21-23 •American Standards Association, Waldorf-Astoria Hotel, New York

### NOVEMBER

- 10-14 •National Hotel Exposition, Grand Central Palace, N. Y. (A. G. A. will exhibit)
- 13-14 •Mid-Southeastern Gas Association, Annual Meeting, Sir Walter Hotel, Raleigh, N. C.
- 19-20 •A. G. A. Employee Relations Conference, Adolphus Hotel, Dallas, Texas

### DECEMBER

- 1-5 •American Society of Mechanical Engineers, Annual Meeting

### 1948

### JANUARY

- 22-24 •A. G. A. Home Service Workshop, Congress Hotel, Chicago, Ill.

### FEBRUARY

- 2-6 •Eighth International Heating and Ventilating Exposition, Grand Central Palace, New York (A. G. A. will exhibit)

### MARCH

- 18-19 •New England Gas Association, Annual Meeting
- 24-26 •Southern Gas Association, Annual Meeting, Galveston, Texas
- 29-31 •Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

### APRIL

- 4-5 •A. G. A. Natural Gas Department, Rice Hotel, Houston, Texas
- 5-7 •G.A.M.A. Annual Meeting, Drake Hotel, Chicago, Ill.
- 7-9 •A. G. A. Sales Conference, Industrial & Commercial Gas Section, Windsor, Canada
- 12-14 •Joint A.G.A.-E.E.I. National Conference of Gas and Electric Utility Accountants, Hotel Jefferson, St. Louis, Mo.
- 19-21 •A. G. A. Distribution and Motor Vehicle Conference, Hotel William Penn, Pittsburgh, Pa.
- 24-25 •A. G. A. New York-New Jersey Regional Gas Sales Conference, Westchester Country Club, Rye, N. Y.
- 24-26 •A. G. A. Production and Chemical Conference, Berkeley-Carteret Hotel, Asbury Park, N. J.

# Accounting Section

LEITH V. WATKINS, Chairman

JOHN A. WILLIAMS, Vice-Chairman

WALTER E. CAINE, Secretary

## Billing Without Meters

BY W. A. HILL

*Delaware Power & Light Co.,  
Wilmington, Del.*

DURING the past few years the gas and electric industry has been confronted with many perplexing and embarrassing problems, one of which is the shortage of materials. In common with other items the meter situation became acute and due to the increasing load of gas and electric customers, our utilities were faced with the problem of direct service connections to the customers or withholding service altogether.

It is to the credit of some hardy souls in our industry—and this idea appears to have occurred to several of our companies more or less simultaneously—that they conceived the idea of billing customers without meters. Of course, this procedure was a temporary expedient, but the fact that they were able to satisfactorily devise and promote a plan of this nature acceptable to customers speaks well for the customer relations which had previously been established by these companies.

Of a half dozen companies who were faced with this problem—and they include both gas and electric companies—generally, no rate schedules were filed with the Commission to cover this type of service and billing.

### Methods of Approach

Usually the Public Utility Commissions were approached informally. The problem of being unable to bill the customers for service used based upon meter registrations or the necessity of withholding service altogether was placed before the Commissions, and permission was asked that we be permitted to furnish the customers unmetered service for such a length of time as was necessary to procure and install meters, billing the customers in the meanwhile on a pre-determined basis. In one case, however, rate schedules covering the various types of service were submitted to and approved by the Commission, with the basis for billing the same as in the other cases.

So that customer acceptance of this method of billing might be promoted and friendly relations maintained the customers were contacted personally, the necessity for this method of billing explained, and the basis of future bills agreed upon. Some of the companies then followed up this interview with a letter setting forth the reasons for the billing procedure and the estimated amount of the bills.

The monthly charge for each customer was considered individually. Generally, this charge

was based upon the number and size of appliances installed—as determined by a survey or interview with the customer—the number in the family, and the size of the domicile. Based upon past experience with relation to these factors estimates were then made for

Lighting and small electric appliances  
Refrigeration—gas and electric  
Cooking—gas and electric  
Water heating—gas and electric

Charges for unmetered house heating customers were based on an estimated consumption on a pre-determined degree day, the size, construction and location of the house. The consumption of gas was determined from a daily record of maximum and minimum temperatures, which were extended to give accumulative degrees in months and for the total heating season. This estimated consumption was divided by the yearly average number of degree days, which in turn showed the estimated consumption per degree day.

In all cases the basis of the estimated bills was mutually agreed upon by the customer and the company. Some companies included in their contract the provision that an adjustment would be made after a meter was installed, to correct any estimate that proved to be too far out of line.

All companies report that the customers' attitude toward billing without meters has been one of complete satisfaction and encouragement. No complaints have been received, and the customers' response has been most gratifying. They apparently appreciate our efforts to furnish them service under abnormal conditions.

The companies are exerting every effort to convert the present unmetered accounts to metered accounts. Already some of the companies have made substantial progress in the installation of necessary meters, and this condition is expected to improve rapidly.

Our utilities have energetically made an effort for some years to demonstrate that they will do everything possible to furnish dependable service, and this attitude contributed largely to the very satisfactory customer acceptance of billing without meters. I believe that our experience in this connection

teaches us that customers are agreeable to changes, even though they may be a radical departure from long established practices.

In this connection I mention an innovation which has been suggested to some of the utilities in the West. This plan is similar to the coupon books used in the purchase of automobiles or bank procedure in making personal loans, with which a great many of our utility customers are familiar.

If a customer's total bill for the year 1946 aggregated sixty dollars, he would be given a coupon book for 1947 containing 12 five dollar coupons, one of which he would remit to the company each month, the same as making an installment payment on an automobile. The utility would make a check reading of the meter quarterly, semi-annually or annually, as the case might be. The failure of the customer to remit his regular monthly payment would result in collection notices being forwarded to him.

### Practical Lessons

What has the industry learned from its experiences? I believe that some very practical ideas and approaches have been indicated. By this I refer to:

(1) The value of reaching a satisfactory agreement with customers at the outset. This pays off by preventing misunderstandings which directly result in complaints.

(2) The absence of complaints point to the fact that customers like consistency in the amounts of their bills. This is similar to the plan with which many of the companies are familiar, of quarterly or semi-monthly meter readings with interim bills made up in the months in which the meters were not read.

(3) The need for excellent customer relations to obtain ready acceptance of such radical changes. Companies whose present policies have resulted in friction with the customers must educate their customers and their employees who contact customers prior to effecting any such changes as to the reasons and necessity therefore.

(4) The acceptance of this war-time experiment may warrant further thought and study in the field of billing on a flat amount basis with only occasional meter readings to check on the accuracy of the billing brackets.

We should not, as an industry, sit back and feel that customers would resent change in our billing methods. Improved methods will be appreciated by our customers if they are presented in the light of improved and efficient methods of operation.

## Notes from F. P. C.

Studies based upon plant investment costs and operating expenses reported by 87 large natural gas companies for 1945 have been made public in a new publication entitled "Natural Gas Company Cost Units."

The work provides data which may be used in comparing construction costs and operating expenses of individual companies with the experience of the industry in general.

The studies are divided into ten sections, the first four of which deal with construction costs of production facilities, transmission lines, compressor stations, distribution systems and other items of plant. Other sections show operating expenses for these facilities. The last sections are devoted to distribution, accounting and collecting, sales promotion and administrative expenses.

The publication may be obtained from the Federal Power Commission, 1800 Pennsylvania Avenue, N.W., Washington, D. C., at 25 cents a copy. When ordering, refer to FPC-S-54.

United Gas Pipe Line Co., Shreveport, La., has received temporary authorization to construct additional pipeline facilities to transport and sell natural gas produced in the Carthage Field in Texas to Texas Eastern Transmission Co. near Longview, Texas, and to deliver Carthage gas into United's Dallas District system west of Longview.

Facilities requested include about 33 miles of 20-inch natural gas transmission line to transport approximately 100 million cubic

feet daily of United's gas to Texas Eastern and also to transport gas for Texas Eastern which it is to purchase from Lone Star Gas Co. and the Chicago Corp. in the Carthage Field. The proposed line will also be used to deliver gas for the Dallas District.

Cost of the project has been estimated at \$1,730,000.

The East Ohio Gas Company, Cleveland, O., has temporary authorization to construct and operate 84 miles of 20-inch natural gas pipeline in Ohio to receive gas from the Big Inch pipelines into the East Ohio main system. Cost of the new line is estimated at \$3.2 million. It will be used to meet increased customer demands in the 83 communities the company already serves in Ohio.

Construction and operation of new facilities to increase the capacity of the nation's natural gas pipeline systems by nearly two billion cubic feet daily were authorized by the Federal Power Commission during the 12-month period between July 1, 1946 and June 30, 1947.

Total cost was estimated at \$273,190,302 of which an estimated \$257,448,776 was for projects each costing \$700,000 or more. These larger projects were planned to benefit nearly 80 major cities and numerous smaller communities in 20 states, many of them in the Appalachian and midwestern areas where gas shortages have been prevalent. The new construction was intended to add at least 1,861,000,000 cubic feet daily to the aggregate capacity of the systems involved.

Major projects covered during the past year involve construction of approximately 4,643 miles of new gas pipelines and installation of 285,074 new compressor horsepower.

## Book Reviews

OR FORFEIT FREEDOM, by Robert Wood Johnson (Price—\$2.50). Doubleday & Company, Inc., Garden City, N. Y.

THIS hard-hitting volume contains some straightforward writing on the ethics of employment. Mr. Johnson explains in clear and simple terms why business in this country has lost public confidence to such an alarming degree, why there is so much labor-management conflict today and what should be done about it.

What will happen if something isn't done about it is suggested in the title.

The author's is a business philosophy of total service to his country. He proposes the following remedies for today's business and labor headaches:

Improved training and all-round education of workers;

Development of a new craftsmanship superior to that destroyed by modern industrialization;

Realism in dealing with unions and improved interpretation of contracts;

Good community relations and decentralization of industry to provide the human element without which neither executives nor workers can do a job;

And, above all, a production program bold enough to furnish a decent living for all.

The author now serves as chairman of the board of Johnson & Johnson, in which firm he developed and tested the principles advocated in this book. He is an important figure in industry and an acknowledged leader in labor-management affairs.

## Light and Shadows

● "An institution is but the lengthened shadow of a man."

This is an adage old, poetic, but as demonstrable as a mathematical formula. Point out a nation, state, city, business, industry, and you can determine quite accurately the character of the man (or men) at the head of it. Point out the man, and you can be quite certain about the character of his institution. And this follows all the way along the line to departments and offices where foremen, office managers and lesser executives are in charge.

The poet refers to the "lengthened shadow"; the realist calls it "influence."

Then, if an institution—whether political, social, or industrial, large or small—is a reflection of the influence and character of the individual at the head, doesn't it become very clear that influence carries with it great responsibility?

Strange things are shadows. Place an object near the light and close to the wall and its shadow is clear, distinct, definite in outline. But change the position of the light, or move the wall far away, and the shadow becomes a long, indistinct, grotesque thing of frightening proportions. Some rather alarming results often follow, too, when "the man at the top"—the boss—gets too far from the light of understanding. Strange things happen when the reflecting surface—his people, his following, his workers—are allowed to get too far away from him. Then the shadow of his influence may become a burlesque of the man himself. It is then that fear is likely to intrude, and fear is a breeder of all sorts of discord.

When understanding dims, shadows become bogey men. Workers fear the worst of

"the man" at the top. And management, in turn, may view with concern and alarm the thinking and influence of workers and their leaders. Because there is misunderstanding, fear grows, and distrust, and even outright hatred. And it's all so unnecessary and rather ridiculous, too, in the light of the sober fact that there isn't anything in the world that cannot be settled peaceably and with benefit to all by men of considerate attitude and good will. A word of commendation and appreciation will often accomplish more than a lawsuit. On approaching a common ground of understanding men often find that they have a great deal in common.

The reflection of your influence is not one whit less important than that of anyone else so far as *you* are concerned. That of the foreman, the supervisor, or the shop-steward may be even more important to the department than that of the president of the company.

The Great Teacher spoke positively when He said: "Let your light so shine—" That is good religion—and it's equally good management.—Editorial, *Trained Men*



# Residential Gas Section

WALLACE M. CHAMBERLAIN, Chairman

C. S. STACKPOLE, Vice-Chairman

F. W. WILLIAMS, Secretary

## Deal in the Dealer

BY BERNARD A. SEIPLE

President, Jersey Central Appliance Co.

While Mr. Seiple is now in the business of selling gas appliances, until recently he was for many years the sales manager of a gas utility company. During the latter period he was active on many committees of the Association and served as chairman of its Residential Gas Section in 1942-43. He is well qualified to discuss the dealer question from both the utility and dealer viewpoints.



B. A. Seiple

Having spent some 28 years in the utility business and now 18 months as a dealer, this dealer cooperation subject has a much broader significance to me. What motivates the utility company in establishing a dealer co-operation program?

All other factors are overshadowed by the number one reason—"To build profitable load and to hold this load against all competitive threats." The dealer, too, must acknowledge a value in the program. The prime requisite to him is—"To sell more products at more profit!"—which brings the realization that "co-operation" really is only an enlightened form of selfishness. Let's explore some of the issues that might tend to make one plan more successful than another.

What should the utility expect of the dealer? He must be thoroughly indoctrinated in the requirements on installation and service of all appliances, and told *why* the utility has these requirements. Mr. Dealer and his organization must have a comprehensive knowledge of rates and how to relate them to the cost of operation of appliances he is selling. Your dealer should properly display all products and make good demonstrations, so that the product itself and the fuel both have a good chance to show to advantage.

Presented at New England Gas Association annual business conference in Boston, March 20-21.

Service of all products he sells should be a paramount requirement. Failure to render service after selling a good appliance, using a perfect fuel, has a threefold result—it destroys the consumer's confidence in the dealer—the appliance—and the fuel.

The dealer should sell aggressively the appliances the utility wants specifically promoted. To illustrate, a dealer once called the gas company for an automatic gas water heater and in demanding prompt delivery service stated that he had tried to get his customer to take two competitive fuel appliances but that the customer had insisted on gas. A cooperative dealer? Yes!

A dealer should have sound financial backing, good business management and an ever-present knowledge of the relationship of sales and net profits.

Let's review the utility's responsibilities. First—dealer requirements should be raised. Just a shingle out front and an occasional sale of a gas or electric appliance should not alone qualify anyone as a dealer. Most dealer co-operation plans I have seen are developed adhering to that age old utility bugaboo—"non-discrimination." Dealers do *not* all fit into the same category and what may be a sound program for one type is beyond the understanding of another group. A co-operation program that qualifies dealers only by x square feet of showroom space or an emblem prominently displayed or requiring this or that quantity of sales force, does not encourage the aggressive, hard hitting, selling man, but rather tends to play down his biggest value to the utility.

The co-operation program that will accomplish the maximum results must be flexible, and should be designed to fit each dealer into his proper niche. Constructively analyze each dealer's needs. Start with the premise that he must be shown that your co-operation plan is tailor made for him.

The utility, since it offers certain definite benefits and helps, has the responsibility of using the utmost discretion in selecting co-operating dealers. Including every dealer in the program regardless of his ability or desire to contribute to the whole is manifestly unsound, and would only contribute to an ultimate breakdown of the entire program.

The January issue of "Electrical Dealer" indicated that in 1929 there were approximately 9,000 appliance dealers, and that in the next ten years 56.63 percent of these went out of business. In that same ten years, however, 6,000 new outlets were opened. Today, Commerce Department officials estimate there are about 21,000 appliance stores. What will be the mortality rate among appliance dealers in the next five years? The utility, operating a sound co-operation plan with carefully pre-selected dealers, has a large stake in this picture.

The utility has the responsibility of making available to the dealer facilities for instruction in proper installation techniques, the proper application of rates and translating the rates into cost of operation figures that will be standardized among all dealers. Misinformation of operation costs on appliances given by a dealer has a very direct reflection in the consumers' attitude toward the utility, and has a real bearing not only on building load but holding it.

Service schools are a must in the successful dealer co-operation program. With appliances becoming almost 100 percent automatic, proper adjustments must be made to give the consumer the type and character service of which the appliance and the fuel combined are capable.

### Value to Customers

The utility should provide a consistent broad program of advertising, display and promotion. Since the appliances provide the end use of utility service, all advertising should feature the value to the consumer of modern appliances, and, for example, stress the health angle in automatic hot water service, the convenience angle in modern cookery, the labor-saving angle in modern home laundry equipment. The utility should make available a research laboratory where new appliances can be thoroughly pre-tested and a complete and impartial approval or disapproval be made. This feature calls for forthright, courageous action by the utility. In so doing, it strengthens its dealer activity.

What does the dealer look for in a utility co-operation plan? This is the most difficult phase of the entire discussion. However, from a cross-section view of the many dealers I have asked came a ready response—"Make it possible for me to sell more appliances and make more profit."

Sounds simple enough but there is much

more to it than appears on the surface. To sell more appliances requires a full analysis both of lines the dealer now carries and means to augment those lines without detracting from the sales effort. During the war when major household appliances were difficult if not impossible to get, many dealers, in order to stay in business, turned to other products. They found they could sell them then and realize a good margin of profit. Can you now woo them back to sell gas and electric consuming appliances? The only way this can be accomplished is by showing them a sound market and a brand of sales assistance they never knew before.

Many utility companies in the past centered their dealer co-operation plan around what was called a "subsidy." There are subsidies and subsidies. A lot depends on how it is set up. If it gives the dealer something for nothing, it is the most disastrous form of subsidy and for most dealers—not wanted. This form of co-operation has caused more dealers to die of dry rot than any other single thing. Strong dealers scorn such "Co-operation" and weak ones cling to the hope that it will keep them going when their other efforts fail.

Basically, a good strong dealer wants only a realization from the utility that certain appliances still require more selling, and in some instances, more inducements to buy, than others, that in supplying these inducements to the consumer the utility is fulfilling the first part of the dealer's slant on a co-op-

eration program: namely, making it possible to sell more appliances.

The second part of the dealer's angle, that of "making more profit," is another phase of co-operation that requires careful study and consideration. By way of example, Mr. Dealer has a choice of selling two products having the same end use. On one product the selling price is 25 percent less than the other. Reduced sales resistance gives him an opportunity to sell some labor along with the appliances and nets him an over-all profit equal to another product (using your fuel and hence one included in your dealer co-operation program).

This man must be shown the advantages of the appliance using your fuel, but there is also an economic selling job for you to do. Just telling him to relate to his customer how much better the appliance using your fuel is—is not enough. He must be shown conclusively. When your fuel requires certain installation requirements above and beyond that required on a similar appliance using a different fuel, make an allowance for it, and don't try to imply to the dealer that this is something for him. Take your dealers into your complete confidence and be honest in your demands on them and equally honest in accepting your share of mutual problems.

Where do we fit our customer into this dealer co-operation picture? By providing to the customer with the best possible appliance, using the best possible fuel supported by the best possible service, at a price that is right,

and on which everyone involved makes a reasonable profit. Co-operation is really an enlightened form of selfishness. If you are to have a real dealer co-operation program, by all means, "Deal in the Dealer."

## Glenwood Announces Record Promotion

AT its summer sales meeting held in August the Glenwood Range Co. unveiled plans for the most extensive fall advertising program in its 69-year history. Newspaper and magazine advertising plus a wide variety of dealer selling aids will spread the news of the firm's new line of gas and combination ranges.

Spearhead of the consumer promotion will be a hard-hitting series of 400 line ads in 96 daily newspapers with a total circulation of 5,791,611. Supplementing this will be 34-page insertions in the New England and Middle Atlantic editions of *Woman's Day*.

## Program Suggested for Upgrading Gas Heating

A COMPREHENSIVE outline of fundamental requirements of a suggested program for upgrading gas heating equipment and installations is contained in a new interim bulletin of the House Heating and Air Conditioning Committee of the Residential Gas Section, American Gas Association.

"It seems evident," the report states, "that one of the most promising fields for load expansion and thus one of the greatest sources of future revenues is residential and commercial gas heating. If this is to be sound new business enjoying continued customer acceptance, it is of paramount importance that the gas industry take immediate and effective steps to see that equipment is manufactured and installed on a plane of high standards."

For the guidance of those desiring to develop a program suitable for local application, the report includes a summary of plans which different utilities have already used with success. Raymond Little, Equitable Gas Co., Pittsburgh, is committee chairman.

## Latest Gas Ranges Shown in Topeka



Every popular make of gas range sold in Topeka, Kan., was shown through the co-operation of dealers in this 20-day exhibit on the main display floor of The Gas Service Company

THE 20 different makes of gas ranges shown on the main display floor of The Gas Service Co., Topeka, Kan., for 20 days this summer provided an opportunity for homemakers to become acquainted with the many post-war innovations in gas cooking equipment.

The show was worked out in co-operation with 26 Topeka dealers and heavy public interest was evidenced. The convenience of viewing every popular make of gas range sold in the city at one central location appealed to homemakers who anticipate replacing outmoded equipment in the near future.

The seven girls in the Home Service Department, which is under the direction of

Rebecca Sullivan, took turns demonstrating a different range each afternoon. Scones were baked and served at the range that was being featured for the day and a variation of the basic scone recipe was made in each of the 20 different ranges. Mimeographed recipe sheets containing the basic scone recipe and variations were distributed to the public while features of the range of the day were explained.

Attention was also attracted by a rose bowl of water, colored blue with cake coloring to symbolize the blue gas flame, and made to steam and bubble by adding dry ice. This and a sign "What's cooking!" were placed on a table near the featured range.

## PR Prescription

● To attain a really happy and successful relationship with either customers or community, a public relations staff needs the support of chiefs who are themselves public relation-shipped. . . . Making friends for your company is a job for the company as a whole. It cannot be done by a public relations office housing a mimeograph machine and a few publicity people. It requires the willing participation of every employee in his relations with the public he meets.—*Public Utilities Fortnightly*

# Industrial & Commercial Gas Section

KARL EMMERLING, Chairman

LEON OURUSOFF, Vice-Chairman

MAHLON A. COMBS, Secretary

## Filling Industrial Customer Needs

BY FREDERICK T. POTTER

*Manager, Quality Control Div., Whitin Machine Works, Whitinsville, Mass.*

**L**ITTLE of my work has been with gas, but I can claim some experience in an industry which it serves well and perhaps can help you see your problems through a manufacturer's eyes.

It has been said that there has been more scientific progress in the past 50 years than in all previous time and that progress in the next 50 will dwarf even that. To keep abreast, an industrial gas engineer should be a student of manufacturing processes, a large order in view of industrial diversification, but one which can pay worthwhile dividends. He cannot give away, gratis, all the gas his company can produce unless his customers have a need and a means of using it efficiently. He must have at his fingertips a vast amount of information, ready for use by his present and prospective customers. If he is qualified to talk on any question of utilization the methods man will call on him rather than the furnace manufacturer and he will be in a much better position as a salesman if the matter of competition with other fuels is mentioned. He will be a salesman rather than an order taker. He may sit in on large decisions rather than wait outside and take what he can get when the policy has been formed. He may be able to divert a customer from another fuel.

If the industrial gas engineer is on hand when a decision is reached he may have a chance to explain that even though gas may be slightly more expensive than oil, for instance, there may be important items like control or maintenance which tip the scales in its favor. In a large conversion from electricity to gas with which I was connected some years ago, gas appeared in our survey to be more expensive than oil and required somewhat higher cost equipment. For several reasons including those mentioned above, gas furnaces were selected. The decision has since been justified by the saving in operating cost and maintenance compared with electricity, even though we make our own power, and by savings in better control and maintenance compared with oil. But even more important was the reduction in the former heating cycle of the eight batch type furnaces. Each annealed several tons of cast iron per day on a nine-hour heating

and six-hour slow cooling cycle. At that time more capacity was sorely needed to the extent that more furnaces and a new building were being considered. A single large conveyor unit was not suitable because the batch furnaces were used for a wide variety of different operations. The converted equipment heated satisfactorily in six hours, reducing the whole cycle to 12 and making possible two loads in 24, a gain of 20 percent in capacity and the equivalent of almost two new units. In this case, the management would gladly have paid a premium for gas had it been necessary, since it would have been very inconvenient to install additional furnaces at that time.

Of further interest to our hypothetical gas engineer, the man with the knowledge of industrial processes, is the fact that this satisfactory installation has led to others in the plant since and the forthcoming replacement of the remaining oil equipment with gas-fired units.

Both gas and electric companies do an excellent job of selling their domestic customers on the many household appliances they have developed. Industrial sales efforts on the part of engineers trained to talk their prospective customers' language would be well repaid by increased good will, particularly among moderate sized and smaller users who are not staffed as completely with men qualified in nearly every field.

In these days when labor costs are still rising rapidly a manufacturer is constantly under pressure to keep costs down to "produce more and more of a better product for less and less," to quote James F. Lincoln. To offer his product at a price which will attract buyers he must use every means his ingenuity can invent to reduce labor expended upon it. This is accomplished most frequently by good leadership which stimulates technical improvements in process and various means of incentive. The average shop man should never forget that a screw machine department costs four or five times his labor figure to run, due to the many direct and prorated expenses which must be added

to the labor dollars. In any process requiring elaborate equipment with high maintenance and low labor cost, this burden is heavy. To ignore this overhead is sure bankruptcy and to reduce it a worthy ambition. Processes technically necessary to a product cannot be omitted and may justify a high overhead charge if they are productive enough.

Present high costs are constantly being whittled away a cent here, a quarter there, by the alert engineer. On quantities of 500,000 per year, a saving of three cents per unit costing \$2 is only 1.5 percent, but annually amounts to \$15,000 which might easily justify installation of an improved productive unit. Where corners are being cut close even a fractional saving is welcomed, particularly if the product is made in large numbers. It is not safe to assume for a minute that our products, gas included, can be priced far above competition unless some outstanding advantage is held. With present pressure requiring industry to hold prices at levels the public will pay, engineers may be expected to watch opportunities to change processes, equipment and fuels to make the small individual economies which decide whether the ink shall be black or red.

### Keen Competition

As industry defeats its postwar problems—delays due to labor disputes, materials shortages and government restrictions—and settles down again into what it hopes will be economical manufacturing, competition will become keener. Now that the grade of product we can produce is again limited by the price for which it can be sold, every manufacturer will find himself between the millstones of cost and quality. A few cents more or less, in quantity, will mean the difference between profit and dissatisfied stockholders. Uniformly high grade products are the result of similar uniformity in the manufacture of their component parts. If dimensions, hardness or finish vary too far either side of the specification average, sub-standard quality may be expected. If each step of the process can be held within certain scientifically determined limits little or no scrap will be produced.

It is by no means easy to keep precise parts of steel and other metals within close limits, particularly where any kind of heat treatment is involved. Heat seems to bring out a lot of

Abstract of talk presented at A. G. A. Sales Conference on Industrial and Commercial Gas, Boston, March 17-19, 1947.



cussedness in the inanimate objects of industry. Textiles, metals, wood and synthetics all develop entirely new sets of characteristics. A certain gear in your car's transmission, for instance, will usually shrink during heat treatment but in some cases will expand, providing the engineer with a problem in making allowance for the change. Too much heat in a textile process may alter the color of the fabric due to a chemical change in the dye. In general, heat cannot be applied by formula alone, for much as we know about it, its effects are somewhat uncertain. To obtain precise results, careful control over every element in the process is necessary. The supply of gas used for heat treatment must be chemically and thermodynamically constant since processes are sometimes dependent upon these specifications for their result.

Slight variations of the wrong kind may result in defective work and troubles difficult to trace and correct. Wide variations in heat content may end in inability to control the process accurately enough for a certain level of quality. Such a lot must either be scrapped, with its additional cost and setbacks to schedules or be reprocessed which interferes with orderly procedure and also causes delays. Retreating such a lot may cost more than the pieces were worth originally because of increased handling and breaks in orderly routine.

From a milling machine, lathe or die an engineer can predict the result with certainty. Not so from many applications of heat. Modern metals are frequently composed of elements carefully selected for their reaction to heat and cold. When the exact specifications as to treatment cannot be met due to variations in the gas, the built-in characteristics of the material cannot be developed and the product becomes inferior. Thus it is necessary that all possible variables be eliminated from the fuel you provide.

The methods engineer, in specifying a gas installation, must have confidence not only in the uniformity but also in the dependability of the supply. During the past two years industry has been waging an uphill fight against nearly every possible factor which could cause disruption of schedules. Such delays in an industry producing durable goods cause similar ones in the plants of its customers, possibly through two or three manufacturing steps and finally disappoint the housewife at the dry goods counter or her husband at the gas company's showroom.

The nicety of timing required for high speed, modern manufacturing is well illustrated by any conveyorized assembly line and is magnified many times in a plant which may employ hundreds of such highly integrated units. The administration of such a system is so complex that finding a good, dependable line of supply about which the manufacturer need never worry is nearly as refreshing to him as a drink of cold water to a man lost in the desert.

Not only would failure of the gas supply upset schedules, but it might also cause loss of materials in process. Service must withstand the attacks of rain, ice or wind. It is

spectacular and an interesting break in routine to charter a cargo plane in Chicago as Chevrolet recently did and send it to Boston. There it met a truck loaded with 9,000 pounds of window channels from a New England manufacturer and landed them in Kansas City late that afternoon in time to keep production going in a body plant. Such feats make stimulating reading for the public, but bring the production manager gray hairs. He would readily exchange the excitement for dependable delivery by freight. The gas industry deserves a top position on the list of dependable suppliers. It should not relax its vigilance.

Closely related is the assistance which the gas industry's service personnel can give. While much more complicated problems arise in a plant using gas than in a domestic installation, their handling may call for much the same technique. Continuous industrial processes, too, have a way of running amok in

(Continued on page 459)

## Stedman to Speak at Industrial Breakfast

THE 1947 Industrial Gas Breakfast, tenth of these annual affairs held during Metal Show Week, will have as guest speaker, Gerald E. Stedman, widely known writer on industrial heating subjects.

Sponsored again by the Industrial and Commercial Gas Section, American Gas Association, the breakfast is scheduled for 8:30 Wednesday morning, October 22, in the South Ballroom of the Hotel Stevens, Chicago.

The first Industrial Gas Breakfast during the National Metal Congress and Exposition was held ten years ago at Atlantic City when a small group of gas men assembled informally. Since then many nationally known speakers have addressed these gatherings of gas men, metals magazine editors and equipment manufacturers. The largest attendance to date is anticipated at this year's meeting.

## Alter Ego Teaches Chef To Save Gas



First three posters in new cartoon series show Alter Ego showing Chef Gus important ways to save gas in the commercial kitchen. Posters are printed in color.

THE Industrial and Commercial Gas Section of the American Gas Association has prepared a new series of cartoon posters employing the humorous touch to promote gas saving practices among volume cooking customers.

In each poster "Chef Gus" is chided by his "Alter Ego" for wasting gas in the commercial kitchen. The 16 by 18 inch cartoons are presented in color and are designed for the bulletin boards or walls of commercial kitchens where they will reach the attention of chefs and cooks who use gas for cooking (but do not pay the gas bill).

They make an ideal hand-out for the commercial gas man as he calls on his quantity cooking customers or may be sent to customers by direct mail. Distributed on a month-to-month schedule the posters will be appreciated by the volume cooking operator as an effort to help him save money.

Prices for each poster (delivered) vary from 12 cents in lots of 500-1,000, to 20 cents in lots of 10-24. Company name may be imprinted at the bottom at a nominal charge. Posters are available through: H. W. Ivins, Room 550, 420 Lexington Ave., New York 17, N. Y.



# Technical Section

C. S. GOLDSMITH, Chairman

A. C. CHERRY, Vice-Chairman

A. GORDON KING, Secretary

## Gas Service Line Installation

BY E. L. HENDERSON

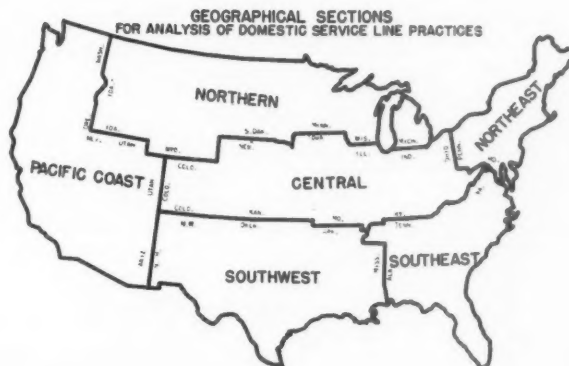
*Assistant Operating Manager, United Gas Corp., Houston, Texas; Chairman, A. G. A. Subcommittee on Construction & Maintenance*

THERE is an urgent need in the gas industry today for the development and adoption of every practice of construction, maintenance and operation which will lower costs, speed up our work and give better service to our customers. Never before has the gas industry experienced a greater demand for expansion of its service. All companies are seeking ways in which to accomplish more with the limited quantity of materials and man hours of labor which are at their disposal.

In an effort to appraise the possibilities which lie in one important phase of our business, this paper has been prepared to present the results of a survey of the practices being followed today by a representative group of gas companies throughout the United States in the installation of domestic service lines.

The survey consisted of a number of questions which have been answered by 117 gas companies, owning and operating approximately 11.5 million service lines. It is estimated that these companies represent more than one-half of the gas industry in the United States. In the tabulation of the answers to this questionnaire, all data is included which seemed to be clearly set forth, although a few of the answers were somewhat indefinite as to their meaning, probably because of a lack of clarity in the wording of some of the questions. These answers, therefore, were not tabulated.

It must be recognized that certain practices and specifications must be influenced by the character of gas distributed and the climatic conditions and other local peculiarities encountered in various areas. The tabulation of the answers, therefore, has been broken down separately according to whether natural gas or manufactured and mixed gas is distributed, and broken down further by sections of the United States in which the respective reporting companies operate; namely, North-



east, Southeast, Northern, Central, Southwest and Pacific Coast Sections. This breakdown permits an analysis by any company of the current practices of other companies throughout the United States, as well as those in his own area where similar conditions and requirements should prevail.

It is recognized that the practice of many companies is controlled by the provisions of city ordinances which, without revision, often times do not permit practices and methods which have been found to be lower in cost and more effective than those which were incorporated in a city ordinance many years ago. This paper perhaps may be of assistance in bringing about the revision of some restrictive and unnecessary ordinance requirements in instances where the practice of other companies, as reflected herein, will support the judgment of the management of the local gas company.

Although certain practices naturally should be influenced by climatic conditions and the character of gas distributed, nevertheless, it is surprising to observe the wide variances which exist in the methods of companies operating under the same general conditions. Why do 45 companies test new services with air pressure while 71 companies do not? Why do 44 companies believe that a careful grade should exist on medium and high pressure service lines while 43 companies do not think it is necessary?

Why do 21 manufactured and mixed gas companies consider service stoppages a major problem while 44 companies, also distributing manufactured and mixed gas, report that

it is not a major problem with them? Why does 60 percent of the manufactured gas industry use 1 1/4 inch pipe as a minimum size for medium pressure services while in the natural gas industry 80 percent of the companies use 3/4 inch and one inch as minimum sizes? Why do 70 percent of the manufactured gas companies use 3/4 inch pipe as a minimum size for high pressure services while more than one half of the natural gas industry uses pipe larger than 3/4 inch as a minimum size for this pressure? It is interesting to learn that 18 companies, owning 2.4 million service lines, use 1.5 inch pipe as a minimum size for low pressure service lines while a great majority of companies report that 1 1/4 inch pipe is the minimum size used for low pressure.

These few questions and observations have been presented to illustrate the need, on behalf of the gas industry and each individual company, of reviewing present practices as compared with other tried and proven methods in use elsewhere. It should be interesting information to the 27 gas companies, who report that they do not protect bare service pipe with coating where it enters the building wall, that 36 gas companies follow that practice.

In answer to the question, "Is it essential that service lines be buried to a minimum depth to protect from freezing?", one would expect that in the cold areas the answers would be predominantly "yes," particularly with manufactured gas companies where condensation is encountered, but in the Northern Section six natural gas companies

Abstract of paper presented at A. G. A. Distribution Conference in Cleveland, April 14-16.

and five manufactured gas companies answered that a minimum depth requirement was not essential.

Perhaps, the reason for this attitude is that the temperature falls so low that it is not practical to protect from freezing by increased depth, and therefore, extra precautions are taken to dehumidify the gas. It should be interesting, however, to explore this subject further.

Four types of joints on steel service lines are each used to a considerable extent with standard screw couplings being most popular. This is the less expensive method and, therefore, it would seem proper for the 102 companies who (at least to some extent) use heavy recessed collars, welded joints or mechanical couplings, to review their practices to make certain that the benefits which are being obtained are commensurate with the added cost over the simple inexpensive screw joints.

"Shut-off valves on Service Lines" is a subject worthy of the attention of a special subcommittee. In no other respect are the reported practices so varied throughout the industry. The reports received indicate that almost every combination of presence and absence of shut-off valves is in use somewhere. No doubt, ordinance requirements control the practice of installing shut-off valves on service lines in many instances. However, it can be said with emphasis and certainty that individual companies, and the gas industry, should give serious consideration to this problem with the intention of establishing the most desirable arrangement of shut-offs for each condition. If revisions of ordinance requirements are necessary, facts and recommendations from an authorized committee of the industry should assist materially in obtaining them.

The survey reveals that the majority of reporting companies do not install shut-offs at the property line or curb on low pressure, although it obviously is a prevalent practice, particularly in the central and southwest sections. An analysis of the data in this report does not support the contention that curb-cocks are used generally where meters are located inside while companies with meters located outside do not need shut-offs at the property line or curb.

On medium pressure service lines (below 15 lbs.) the practice of installing shut-off valves seems to be quite different between natural gas and manufactured gas companies. The predominate practice in natural gas companies is to install a shut-off valve only ahead of the regulator, although a large number also install a shut-off at the property line or curb. For this same type of service, the majority of manufactured gas companies install three shut-off valves; one ahead of the meter, one ahead of the regulator, and another at the property line or curb. This same practice is followed by the majority of manufactured gas companies for high pressure service lines (15 lbs. to 100 lbs.) while in the natural gas industry the principal practice seems to be to use either one shut-off valve ahead of the regulator or to install a shut-off valve at the main, as well as ahead of the regulator.

Upon investigating the rather prevalent practice of manufactured gas companies to install a shut-off valve ahead of each meter, in addition to one located ahead of the regulator, it would seem that this practice is probably followed because of the use of the same meter bar equipped with a stop cock for medium pressure and high pressure installations as is used on low pressure; whereas, in the natural gas industry it is a more common practice to use the less expensive meter bars without stop cocks on medium pressure and high pressure installations. The data in this report on shut-off valves must be considered somewhat general, but at the same time, indicative of the complexity of this problem. A more comprehensive review of this particular subject is recommended and should produce some very enlightening and helpful information.

The answers to the question about service stoppages reveal that it is a troublesome problem with a large number of companies and a major problem in many cases, particularly with companies distributing manufactured gas. The answers indicate that the use of vacuum and steel snakes are considered the most satisfactory methods of removal by many companies.

Steel pipe is used predominately for serv-

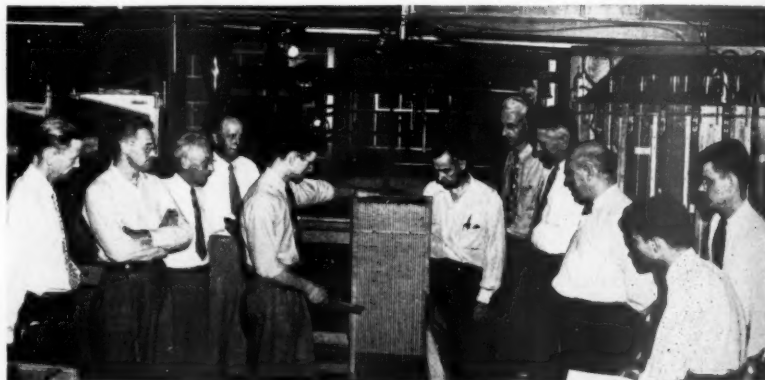
ice lines throughout the industry, with copper being the next most popular material. About three quarters of the steel pipe used is black and about one quarter is galvanized. A large majority of steel pipe is protected with a coating applied while hot. Only a small percentage of the coatings is applied on the job. The practice of application at the mill or in the yard is followed in most cases. The use of bare pipe and cold coatings seems to be more popular among the smaller companies. It is also evident that a wider use of bare pipe is made in manufactured gas companies than in the natural gas industry.

Copper pipe, where used, is joined by the use of solder, rubber-joint fittings, or S.A.E. fittings, without any apparent industry-wide preference for any one of the three methods over the others, except that all companies in the Pacific Coast section, using copper, reported that they used solder connections.

Five companies in the southwest and one in the northern section reported the use of cathodic protection for service lines. Apparently, this practice is not followed in other sections of the country, although a few reported that they are planning for its use.

The practice of insulating service lines from the main distribution system is followed

## Wind Tunnel Aids Gas Venting Study



*Demonstrating methods of taking simultaneous readings of wind pressure: left to right—C. E. Blome, Purdue Research Foundation; Edmund F. Lorman, Day & Night Mfg. Co., Monrovia, Calif.; E. C. Adams, chairman, Technical Advisory Group; Glenn C. Carnahan, James B. Clow & Sons, Chicago; D. L. Arne, Purdue; William M. Myler, Jr., Surface Combustion Corp., Columbus, O.; J. R. Scherrer, Jr., Security Mfg. Co., Kansas City, Mo.; W. A. Stuckey, The Moore Corp., Joliet, Ill.; Eugene D. Milener, A. G. A.; Paul White and Sam C. Hite, both from Purdue Research Foundation*

AS part of American Gas Association domestic gas research in venting gas heaters and other gas appliances, where no standard chimney connections are available, scale models of houses (1/24 size) are tested in the wind tunnel by experts of Purdue University's Department of Aeronautical Engineering, Lafayette, Indiana. Wind speeds up to 60 miles an hour are used and the models are placed in five different positions with respect to wind direction.

In the accompanying photograph, D. L.

Arne of the Aeronautical Engineering Department is demonstrating to the Technical Advisory Group for Direct Space Heating Research of the Committee on Domestic Gas Research the methods used in taking up to 400 simultaneous readings of wind pressure on different parts of the exterior of a scale model house for each of the five positions. From this and other types of data collected, the intensity and depth of static pressure at all positions on the exterior of houses can be calculated and flow diagrams and turbulence diagrams prepared.

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by 20 companies operating more than three million service lines. Some of them insulate at the main, others outside the building, while several report that they insulate inside the building. This general practice of placing insulating devices on service lines is probably related to problems of electrolysis, galvanic corrosion, and other factors. It would seem that in each distribution system a different set of conditions would prevail and might influence the decision of whether or not service lines should be insulated. It is possible that this general subject is one worthy of additional study.

Rubber-joint couplings and fittings are used extensively in almost every part of the country. Welding on steel mains and tapping on cast iron mains are the most popular methods of connecting services.

A rather definite conclusion can be drawn in regard to the relation of climatic conditions to the problem of locating meters inside or outside buildings. Generally speaking, meters are located inside buildings on the north and outside south of a line drawn across a map of the United States roughly bounded on the North by the States of Oregon, Idaho, Colorado, Kansas, Missouri, Kentucky and North Carolina.

The answers to the question, "If a building has no basement, do you require that service terminate inside of building?" indicates that usually companies who, as a general rule, install their meters inside do not install their meters outside unless shelter is provided.

Ordinarily IBBC stop cocks are used by most companies for all purposes although plug valves (lubricated in most cases) are used by many for high and medium pressures and all-brass cocks are also used by some. Not many companies report that they follow a general practice of installing service stubs for future customers ahead of new pavement improvements. The great majority either do not install them at all or, if so, only to a limited extent.

In reporting principal methods for installing service lines under pavement, more companies list removing and replacing pavement than any other practice. In the northeast section the practice of driving pipe with an air hammer is considerably more popular than any other method of inserting pipe through the soil. In other sections of the country, the use of pushing machines, and augers (both hand-driven and power-driven) is favored.

It is apparent, from the answers received, that almost all companies look with disapproval upon the practice of supplying two or more meters at or in different buildings, rooms, or basements, from one service line.

The tabulation of practices in connection with domestic service lines was compiled from questionnaires returned by 117 gas companies which operate a total of 11,611,500 service lines. Of the companies represented, 52, with a total of 5,257,500 service lines, distribute natural gas, and 65, with a total of 6,354,000 service lines, distribute manufactured or mixed gas. With the exception of one Canadian company, all of the tabulated questionnaires were received from companies operating within the United States.

## Corrosion Literature Review Issued

A NEW report released by the American Gas Association, "Literature Review of Corrosion of Metals and Materials by Flue Gas Condensate," provides a valuable summary of current knowledge on the subject of corrosion.

The pamphlet is a preliminary report on research project DGR-4-CH "Research in Corrosion, Oxidization and Deterioration of Metals under the Influence of Products of Combustion of Gaseous Fuels." This project is under the supervision of the A. G. A. Technical Advisory Group for Central Gas Space Heating Research, Keith T. Davis, Bryant Heater Co., chairman.

Further laboratory work now underway at Battelle Memorial Institute is directed toward an intense qualitative and quantitative study of gas appliance corrosion particularly as applied to heating appliances. Results of this intensive laboratory work will be included in later reports, according to F. M. Banks, Southern California Gas Co., chairman, A.G.A. Committee on Domestic Gas Research.

## New York Boiler Code Meeting Planned

THE Boiler Code Committee of The American Society of Mechanical Engineers will hold another public hearing in the east on the Proposed Revision of Section VIII of the A.S.M.E. Boiler Construction Code (Unfired Pressure Vessel Code), dated January, 1947, in the Engineering Societies Building, 29 West 39 Street, New York, N. Y., November 19, at 10 A.M.

The purpose of this hearing is to give all those interested in the proposed revision an opportunity to express their comments.

Those desiring to review the proposed revision may obtain copies from the A.S.M.E. at 29 West 39 Street, New York 18, N. Y., at \$1.00 each. Those interested are also invited to submit their written comments to the secretary of the Boiler Code Committee.

## New Design Announced By Cooper-Bessemer

A NEW design in large two-cycle gas engines which offers important advantages, has been reported by Ralph L. Boyer, vice-president and chief engineer, Cooper-Bessemer Corp.

Engine users can take 10 percent more horsepower from this new engine than is possible from present engines of the same size, Mr. Boyer said. In addition, fuel consumption is reduced 15 percent under that of any two-cycle gas-burning engine yet built.

The engine which incorporates these features is known as the "Turboflow," and will be in full production by the second quarter of 1948. This engine is of the type now used extensively in pumping stations located along the pipelines from the major natural gas fields.

The "Turboflow" uses a combination of

combustion principles that have not been used before in this type of engine. The changes which produce these results in power and economy have been worked out along the line of getting a greater volume of air and gas mixture into a more intimate relationship and then igniting it electrically at a greatly increased voltage through a standard spark plug.

The engine has been thoroughly tested in the company's research division and one of them has been operating in an actual installation for more than a year. The results enabled the firm to guarantee a fuel consumption of 8,500 B.t.u.'s per horsepower per hour.

## Underground Gasification Report Available

PIONEER accomplishments of the first government-sponsored attempt to burn unmined coal to produce gas in the United States—technically termed the underground gasification of coal in place—are described in detail in a report released by James Boyd, Director of the U. S. Bureau of Mines.

The successful gasification experiment was conducted jointly by the Bureau and the Alabama Power Co. at Gorgas, Ala., between January 21 and March 12, 1947.

Five types of blasting were used to produce gas-air, oxygen-air, oxygen-air-steam, oxygen-steam and steam blasts. By regular sampling and analyses of gases given off, it was determined that the first three methods produced gases that could be used for generating power, while the oxygen-steam and steam blasts yielded gases suitable for synthesis purposes.

In addition to a detailed description of the successive stages of the development of the gasification project, tests during the actual burning, and the examination of the cooled mine, the illustrated report includes an appendix describing the laboratory test of roof rock and a chronological history of the experiment.

A copy of the publication, "Experiment in Underground Gasification of Coal, Gorgas, Ala.," may be obtained by writing to the Bureau of Mines, Department of the Interior, Washington 25, D. C.

## Pneumatic Temperature Measurer Introduced

FAIRCHILD Camera and Instrument Corp. has announced its Pneumatic Temperature Measuring System, for measurement and control of extremely high gas temperatures to 5,000 degrees, Reaumur. The instrument is a form of gas thermometer utilizing the density of the gas being measured as a direct indication of the temperature.

The new system is described as not subject to the usual radiation effects common to present temperature sensing methods. Specified accuracies for the instruments are plus-or-minus one percent to 2,500 degrees R., and plus-or-minus two percent from 2,500 to 5,000 degrees R., with a response rate of 0.5 second or less.

## Indiana Water Heater Promotion



**Don't be a "tank-pitter"**

WHY spend precious hours mulling an inadequate, inefficient water heater when you can have all the hot water you need when you need it . . . instantly . . . automatically.

With an automatic Gas water heater on the job, you can count on a constant supply of steaming-hot water for laundering, bathing, shaving, and washing dishes, too.

There's no waiting . . . no "tank-pitting" . . . no need to run up and down the basement stairs every time you want hot water.

Automatic Gas water heating is the most practical, the most economical way to make use of an ever-ready supply of clean, hot water. Why not enjoy it in your home?

With an automatic Gas water heater, there's:

- No Waiting
- No Tank-Climbing
- No "Tank-Pitting"

**CENTRAL INDIANA Gas COMPANY**

One of four newspaper ads used by the Central Indiana Gas Co., Muncie, to educate customers whose homes are modern except for water heating

## gas grapevine



Brooklyn Union reports in their *Gas News* that increases in gas sales during the first half of 1947 over the same period of 1946 have been phenomenal. Industrial gas has increased

6.97 percent and commercial gas has increased 15.05 percent. Like the automobile, it looks as if industrial and commercial gas is here to stay. With the live-wire boys on the job in Brooklyn, the above news is no more than expected.

A recent news item in a New York daily states that a shortage of water pipe is forcing a cut in milk production in the west.

Gossip by commercial gas men heard here and there seems to indicate that these men should not only know the owners of the restaurants they service, but the chefs, cooks and even the waiters as well.

Speaking of the scale model kitchen, a client of an equipment house in South Africa saw a picture of it in *Institutions Magazine* and

now wants to install a full-sized one in his restaurant. We do get around.

Ye scribe doesn't know what to do about Portland (Ore.) Gas & Coke Company. Each month they send a long list of new gas installations and their latest On The Job sheet tells about no less than eight new establishments using gas for cooking.

a. q. s.

## Philadelphia Electric Revises Gas Rates

THE Philadelphia Electric Co. filed a new tariff with the Public Utility Commission on September 15 increasing rates for gas and steam service effective November 15. The new gas rates will affect some 156,000 residential, commercial and industrial users in Montgomery, Bucks, Delaware, and Chester counties. They do not apply to gas users in the City of Philadelphia, where service is supplied by The Philadelphia Gas Works Company.

Higher costs for coal and oil, and other increased costs associated with gas and steam production, including labor, is the reason given for the rate boost. For the past 25 years the cost of gas service to P. E. customers has not increased even though most other items of the household budget have spiraled. On the other hand, there have been a number of reductions in gas rates in that period.

Under the new gas tariff, five general service classifications formerly in effect in different districts will be superseded by a single rate which will remove district differentials heretofore existing. This rate covers service to residential, commercial and small industrial users, and applies to the great majority of the company's gas customers, some of whom will benefit from the change.

H. B. Bryans, president, declared the decision to increase gas rates was made only after an exhaustive study.

## Vacuum Heat Treating Report Available

MUCH of the speculation surrounding the possibilities of vacuum heat treating, especially under the pressure of increasingly tighter restrictions for all heat treated products, is removed by a report released by the American Gas Association, "Research in Controlled Vacuum Heat Treating."

This is the final report of results obtained from Research Project No. 49 conducted for the A. G. A. Committee on Industrial and Commercial Gas Research by the research laboratory of Surface Combustion Corp., Toledo, Ohio. The work constitutes the third step in a series of projects sponsored by the committee. The first step was a study of heat treating when the work is surrounded by reducing atmospheres produced by the products of combustion in open fired furnaces. The second was pioneer work in the use and ef-

fects of prepared or synthetic atmospheres—which has developed into extensive commercial applications.

The completed study is believed to be the first of its kind. Experimental data, conclusions, and deductions on work to determine the practicability of heat treating when there is no atmosphere surrounding metals during the heat treating cycle are included in the report. Ralph L. Manier, Central New York Power Corp., Syracuse, is committee chairman.

## Pittsburgh Group Has Perfect Safety Month

EMPLOYEES of The Manufacturers Light and Heat Co., Pittsburgh, closed their annual August "No Accident" safety campaign with a perfect safety record—not a single injury during the month to cause time lost from work.

Irving K. Peck, vice-president and general manager, reported that this accomplishment was duplicated in all the affiliated gas companies making up the Pittsburgh Group of the Columbia Gas System.

He said that more than 2,500 gas company men and women worked safely for approximately 500,000 hours during the annual August drive for improved safety practices.

This year's slogan was "Everyone Wins in August." "Everyone has won in August!" Mr. Peck declared.

## N. C. G. A. Set Desired

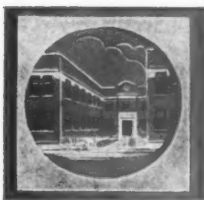
A COMPLETE set (in good condition) of the National Commercial Gas Association's "Practical Gas Educational Courses on Industrial Fuel" and "Industrial Fuel Reference Book," is being sought by Louis J. Platt, vice-president, Calumet Iron & Supply Co., 175 West Chicago Ave., East Chicago, Indiana. The two works were copyrighted in 1916 and 1917.

## Hopalong Cassidy



Movie star Bill "Hopalong Cassidy" is obviously pleased with his automatic gas range





## Laboratories

ARTHUR F. BRIDGE, Chairman

R. M. CONNER, Director

### Combustion Research Publications Issued

TECHNICAL studies on flame impingement and effects of ambient pressures in combustion chambers have recently been published and released by the American Gas Association Testing Laboratories. Results of these studies, sponsored by the Committee on Domestic Gas Research, are presented in the form of a research bulletin and a research report.

Research Bulletin No. 43, "Investigation of Extent of Gas Flame Impingement Allowable for Satisfactory Combustion," presents new data on factors affecting combustion due to flame impingement such as type of gas, variations in materials and surfaces impinged upon, and temperatures of such surfaces. Experimental results obtained on sev-

eral types of burners are given to illustrate effects of these factors on combustion.

Research Report 1080, "Research in Effects of Ambient Pressures in Combustion Chambers of Contemporary Appliances on Primary Air Injection, Flame and Other Gas Burner Operating Characteristics," rounds out earlier studies made of the effects of ambient temperatures. Both new studies were conducted under the supervision of the Technical Advisory Group for Burners, Controls and Accessories Research, William R. Hainsworth, chairman.

### Resume Conversion Burner Testing

THE American Gas Association Testing Laboratories will start testing of gas conversion burners under a new set of listing requirements on November 1.

Resumption of testing for certification of conversion burners, following temporary suspension, was approved by the Laboratories Managing Committee after adoption by the Approval Requirements Committee of extensively revised standards covering such burners.

Appropriate notice has been sent to all conversion burner manufacturers on record and the new requirements supplied them. Additional copies are obtainable from the Laboratories in Cleveland and Los Angeles. Following completion of satisfactory test results conversion burners meeting the new requirements will be listed in the "Directory of Approved Gas Appliances and Listed Accessories."

If the gas industry can give the manufacturer smart, up-to-date engineering assistance which sells and not merely takes orders; if it can provide a reasonably and competitively priced fuel which enables him to make better goods at a lower price; if it will give him cheerful help in emergencies and see that he gets a steady supply of constant quality under all conditions, it will have made a friend not easily lost.

### CONSERVATION IS SOUND BUSINESS

(Continued from page 429)

ers and condensers that are suspended in mid-air, especially when there is no platform from which to work or on which to place the tube bundle for inspection.

The entire plant and production organization exists solely to make a given product. Why is it that we frequently neglect warehouses and product storage areas as well as loading and shipping platforms? We have all seen millions of dollars of inventory stored in old wooden warehouses or buildings devoid

of any form of modern fire protection.

Final product should be carefully segregated in accordance with the calculated risk principle. Dykes or fire trenches can be used to advantage to control both fire risk and spillage. Inspection is important here for the storage area is much less populated than the production area and any spill or fire would gain considerable headway before detection. Fixed fire protection of the automatic type is the only kind worth considering here.

In the transfer of products, either dry powder or liquids in pipes, care must be taken against static electricity. All equipment should be bonded together and then run to a common ground. Static electricity is still being blamed for a lot of mysterious fires, most of which blame I think it deserves. More attention is being given to the explosion-proof features of the Electrical Code in the case of metallic powders and dusts, as well as plastics and certain fibres.

### Safeguards

Too much emphasis cannot be placed on setting up safe operating procedures and proper safety training in job instruction. The same applies to standard maintenance, repair, and construction procedures. Proper development and enforcement of these standards will put an end to wildcat operation and make-shift repairs—the cause in the past of the loss of many of our production resources.

Other important conservation items are: waste control, salvage, industrial waste treatment, pollution abatement in rivers, smoke abatement in the atmosphere, treatment of corrosive stack gases, material handling, development of executive ability and obviously, many more.

Conservation is nothing new. You have been using it many times a day. Conservation is the preventing of a loss of any kind. It will become increasingly more important as competition develops in the future.

Once we are convinced of its importance, believe in it and act accordingly, it will help each of us to do a better job.

### FILLING INDUSTRIAL CUSTOMER NEEDS

(Continued from page 454)

the middle of the night. During those crises it is often surprising how helpless the people on duty are. Such an incident made news in our plant several years ago, but with fortunate results because in this case the watchman did his job well. One of the large gas furnaces went out of control at three in the morning. The watchman on that usually quiet beat saw white hot iron dripping from the door to the concrete floor. By the time he had summoned the night electrician (it was pyrometer, not gas trouble) quite a puddle had collected. They managed to shut off the gas and by quick action raked most of the partially molten load of castings on to the floor and saved the furnace. Incidentally, its rise to about 2,500° damaged it only slightly.

An accident of that kind might easily happen in a smaller plant where no specialist was available, in which case the nearest gas service man would be called upon. Such industrial service work requires a competent, technically trained man who is willing to live the life of a country doctor. Prompt and effective help of this kind is needed by industry and will do more to build the customer's good will than many calls at his front door.

# Personal and Otherwise

## Helen Vernon Takes Binghamton Post



Helen F. Vernon

**H**ELLEN F. VERNON has been named home service director of Binghamton (N. Y.) Gas Works. Irving K. Peck, vice-president and general manager of The Pittsburgh Group of companies in the Columbia Gas System explained that Miss Vernon replaces Helen Wilcox who has accepted a position with the Johnson City schools.

Miss Vernon is a native of New Concord, Ohio and received her B.S. in home economics from Muskingum College in that city. Before joining The Pittsburgh Group, she taught home economics at Shadyside and Martins Ferry, Ohio.

Since 1944 she has been home service director in the Bellevue, Pa., district of The Manufacturers Light and Heat Company. Her successor in that post is E. Grace Lance.

Miss Lance is a native of Beaver County and received her B.S. in home economics from Battle Creek (Mich.) College.

During the war, she was assistant personnel director supervising women's activities at the Leetsdale, Pa., plant of American Bridge Company. For the last few years she has been teaching home economics in the Pittsburgh school system.

## Port Advances at Cribben & Sexton

**D**R. FREDERICK PORT has been appointed production superintendent of Cribben & Sexton Co., succeeding Fred Doering, who has held the post since 1943.

Dr. Port has received degrees from the University of Chicago, University of Illinois and M.I.T. Prior to the war, he was head of the Combustion Engineering Department of Republic Steel Corporation.

In 1942 he entered the Army as ordnance officer in procurement work. He was successively, resident ordnance engineer at the Studebaker Corp., officer-in-charge of Stude-

baker Proving Ground, and assistant chief of tank and automotive purchasing in the Chicago Ordnance District.

Dr. Port joined Cribben and Sexton as chief engineer in 1946 and remained in that capacity until his recent appointment.

## Pittsburgh Equitable Meter Appointment

**W**ILLIAM F. WEIMER, for the past several years assistant advertising manager of the Rockwell Manufacturing Co., Pittsburgh, has been named advertising manager of the company's Pittsburgh Equitable Meter Division.

He will have charge of the complete advertising program for the Pittsburgh Equitable Meter Division's lines of water, gasoline, oil and gas meters, gas regulators and other products. He will also continue to assist with the administration of the company's over-all advertising program and its 14 operating divisions and subsidiaries.

Mr. Weimer's service with the company includes several years in the sales department and editorship of the employee house organ for the Pittsburgh Equitable Meter plant. He is active in Pittsburgh advertising circles, and at present is a director of the Pittsburgh Industrial Advertising Council.

## McHugh to Represent Cincinnati Manufacturer

**T**HOMAS A. MCHUGH has been appointed New York representative of The Stacey Manufacturing Co., Cincinnati, with offices at 30 Church Street.

Mr. McHugh is a graduate of Georgetown University and during the war was co-ordinator of the Navy's submarine program.

The Stacey company has been serving the gas industry for over 96 years. About a year ago it completed the first all-welded vertical panel gas holder erected in Massachusetts. The firm has built a large addition to its plant in Cincinnati and has diversified its products while specializing in gas holders and gas plant equipment.

## Drew Receives N. A. M. Advancement

**J**E. DREW, recently a member of the gas industry, has been appointed associate director of public relations of the National Association of Manufacturers, according to an announcement by Holcombe Parkes, vice-president in charge of public relations of the N.A.M. Mr. Drew will be responsible for the operation of all units comprising the Public Relations Division.

He joined the association last October as an assistant to Mr. Parkes, coming from the American Gas Association, where he served as assistant director of promotion. Prior to that period, he was deputy manager of the American Bankers Association.

## Meyer Furnace Appoints Qualley



R. W. Qualley

**R**AY W. QUALLEY has been made chief product design engineer of The Meyer Furnace Co., Peoria, Ill.

Mr. Qualley was formerly heating laboratory supervisor for Airtemp Division of Chrysler Corp., Dayton, O., where for three years he was in charge of development and test of all heating equipment. Prior to that he was associated with the Minneapolis-Honeywell Regulator Co. for 11 years. He attended the College of Engineering, University of Minnesota, and is a registered professional mechanical engineer in Ohio.

## Wilson Made Electric Power & Light Director

**S**AM J. WILSON of Montrose, Ark., one of the largest farming and timber operators of the Midsouth, has been elected a director of Electric Power & Light Corp., New York.

Edgar H. Dixon, president, explained that the election of a director from Arkansas follows the company's policy in having representation on its board from each of the areas in which its operating subsidiaries are located. Mr. Wilson is the second farmer to become a member of the board.

## Gas Industry Veteran Accepts New Position



W. L. Jones

**W**. L. JONES, former treasurer of The St. Louis County Gas Co. and an active member of the gas industry for 24 years, has been appointed director of a newly organized Department for Economic Development in Union Electric Company.

This department will co-operate with other Union Electric departments and work with civic and community agencies in promoting industrial development in Franklin, Jefferson, St. Charles and St. Francois Counties.

Mr. Jones has been associated with Union Electric for 27 years, first in the sales department, then as local manager at DeSoto and St. Charles, and finally with the St. Louis County Division of the company. He held

positions as sales manager of the county division, treasurer of St. Louis County Gas, which was then associated with Union Electric, and assistant treasurer of Union Electric.

When the county gas company was sold to The Laclede Gas Light Co. last February, Mr. Jones resigned his position to begin organization of the Department for Economic Development.

## Seven Republic and Dominion Men Promoted



*Promotions went to (left to right) Donald P. Spencer, John R. Reeves and Donald A. Hamilton, and to four other executives*

**P**ROMOTION of seven executives of the Republic Light, Heat & Power Co., Inc., and the Dominion Natural Gas Co., Ltd., has been announced by S. B. Severson, president.

John R. Reeves, general superintendent of Republic, was elected vice-president of that company. He holds the same office in the Dominion Natural Gas Co. Ltd., and the Penn York Natural Gas Corporation. Donald A. Hamilton, assistant treasurer of the Republic and Dominion companies, was named treasurer of both companies.

Donald P. Spencer, assistant secretary of the two companies, was made secretary of both the Dominion and Republic Companies.

H. P. Nagel was elected assistant secretary of the Republic Company. Howard F. Moore and Walter G. Stroman were named assistant treasurers of both the Republic and Dominion Companies. Robert M. Robinson was elected assistant secretary of the Dominion Company.

The changes were made to fill vacancies resulting from the death of James A. Richie, who had served as vice-president, secretary, treasurer, and a director of the Republic and Dominion companies for many years.

New members added to the Republic board of directors were Messrs. Reeves, Hamilton and Moore. Mr. Reeves was also made a director of the Dominion Company.

The Republic and Dominion companies are subsidiaries of the Cities Service Co., and have their head offices in Buffalo, N. Y.

Burning springs, caused by natural gas seeping through the water, caused ancient writings describing "water that did burn like oyle."

## Eckenhoff to Manage Roberts & Mander Sales

**R**OBERTS & MANDER CORP., Hatboro, Pa., has announced the appointment of W. B. Eckenhoff as sales manager, succeeding the late John H. Emery.

H. S. Minster, president, pointed out that Mr. Eckenhoff will exercise general supervision and direction of the company's expanding sales and marketing program, and will have his headquarters at the home office in Hatboro.

Mr. Eckenhoff has been active in the firm's sales organization for more than 13 years. He was assistant sales manager for eight years before his present appointment.

## Schryer Joins Meyer Furnace Company

**F**RANK H. SCHRYER has been appointed superintendent of the Peru, Ill., plant of The Meyer Furnace Co., according to an announcement by Frank L. Meyer, president.

Mr. Schryer recently served as general superintendent of the L. J. Mueller Furnace Co., and has a background of 30 years in manufacturing and foundry work. Expansion of the furnace company's lines is planned. These include gas, oil and coal furnaces, stokers and air conditioning equipment produced at the Peoria and Peru plants.

## United Gas Promotion

**E**B. ORCHARD of Houston, Texas, has been promoted to sales manager of the Houston division of the United Gas Corporation.

Division Manager James A. Wilson announced the promotion from new business supervisor to sales manager. Mr. Orchard is active in civic, Chamber of Commerce and Community Chest work and has been with the corporation 15 years.

## Johnson To Aid Chicago Firms

**B**A. JOHNSON, who recently resigned from Minneapolis-Honeywell Regulator Co., has moved to Chicago to become active in administrative and consulting work. His immediate association will be with Barney Olson, Inc. and Condensation Engineering Corporation.

Prior to joining Honeywell in 1942, Mr. Johnson was associated with The Peoples Gas Light and Coke Co., Chicago, as a staff engineer and later sales engineering manager in the Domestic Sales Department where he became widely known for his work on gas heating equipment problems. He left Peoples Gas to work in a Chicago war plant operated by Honeywell. There he soon became chief engineer. After VJ-Day he moved to Minneapolis to become assistant to the engineering vice-president.

# Associated Organization Activities

## Large Attendance at Maryland Meeting

**A**PPROXIMATELY 300 representatives from gas, electric and transportation companies and allied manufacturers, attended the fall conference of the Maryland Utilities Association at the Cavalier Hotel, Virginia Beach, Va., September 6.

In a featured talk, Dr. R. W. Valentine, economic consultant to Halsey Stuart and Co., discussed the problems of safeguarding the credit position of public utilities under present and prospective economic conditions.

Joseph Pursglove, Jr., vice-president, Pittsburgh Consolidation Coal Co., discussed the widely publicized plan of the coal industry for the liquefaction of coal.

At the evening session Leslie Williams, urban planner, American Transit Association, presented his views on "America's Number One Problem: Replanning Our Cities."

Charles P. Crane, Consolidated Gas Electric Light & Power Co. of Baltimore, is president of the Maryland Utilities Association. Other officers are: vice-president—Adrian Hughes, Baltimore Transit Co.; treasurer—J. Carl Fisher, Consolidated Gas Electric Light & Power Co.; secretary—Raymond C. Brehaut—Washington Gas Light Co., Washington, D. C.

## Broad Program For I. N. G. A. A. Meeting

**M**ANY interesting and timely phases of the natural gas business will be discussed during the third annual meeting of the Independent Natural Gas Association of America at the Skirvin Hotel, Oklahoma City, Okla., October 24.

Joseph Bowes, Oklahoma Natural Gas Co., Tulsa, I.N.G.A.A. president, will then present his report to the membership, at the general meeting, and Paul Kayser, president, El Paso Natural Gas Co., Houston, will discuss "The California Line and Physical Problems Incident Thereto," in an address supplemented by motion pictures.

A question and answer forum on "The Steel Pipe Outlook" will be conducted by W. F. McConnor, vice-president, National Tube Co., Pittsburgh, followed by a "Report of the Legal Committee on Current Problems," to be presented by Glenn Clark,



general counsel, Cities Service Gas Co., Oklahoma City.

During the afternoon session, R. G. Taber, president, Atlanta Gas Light Co., will discuss "The Problems of the Distributing Company as Related to Producers and Transporters." He will be followed by James F. Gray, Dallas, who will talk on "A Royalty Owner Looks at the Gas Industry."

"Gas for Tomorrow" is the subject of a scheduled address by Gail F. Moulton, staff geologist in the Petroleum Department, Chase National Bank, New York. The final addresses will be "Synthetic Liquid Fuels and Chemicals from Natural Gas," by George Roberts, Jr., Research Division, Stanolind Oil and Gas Co., Tulsa, and "Some Operating Problems of the Independent Producer," by L. T. Potter, assistant to the president, Lone Star Gas Co., Dallas.

Closing events will be a board of directors meeting, election of officers and a membership party.

## Mid-West Gas School Well Attended

APPROXIMATELY 230 gas men, operators and manufacturers' representatives attended the twenty-fourth Mid-West Gas School and Conference held at Ames, Ia., September 8 and 9. Meetings were conducted at Iowa State College and 17 manufacturers of meters, regulators and kindred equipment displayed their equipment in the exhibit hall.

Arnold C. Rathkey, first vice-president, the Mid-West Gas Association, was in charge

of the Monday morning general meeting. Principal speeches included a talk by John F. Merriam, vice-president and treasurer, Northern Natural Gas Co., Omaha, on "The Current Situation in the Natural Gas Industry," and a talk by H. C. S. Thom, senior meteorologist of the U. S. Weather Bureau for the State of Iowa, on "Weather Forecasting for the Gas Industry."

Mr. Thom explained facilities available to the industry in his territory and possibilities for various types of weather forecasting for gas company operators, particularly during the heating season. Thereupon, a committee was appointed to represent the association in formulating a program of specialized forecasting for the gas industry in Iowa and supplying these forecasts to interested gas companies.

Other meetings were divided into sections—distribution, production, utilization and metering—with timely subjects presented as papers, followed by general discussion periods. The conference closed with a banquet Tuesday evening.

Production of high B.t.u. gas and use of liquefied petroleum for standby and peak shaving, change-over procedure for natural and LP-gases, pipe coating and wrapping, street work in one-foot holes, new residential gas equipment and meter records, repair, testing and choice of metering equipment, were among subjects covered in sectional meetings.

The executive council announced that the 1948 annual convention of the Mid-West Gas Association will be held at the Nicollet Hotel, Minneapolis, Minn., April 8-10.

## GREENWICH UTILITY GREET'S NEW ERA

(Continued from page 433)

ter as the front with large attractive windows and glass doors of a modern design.

Inside the building, even climatic conditions are controlled by gas. Every feature is especially designed to appeal to women who, the management realizes, are particularly important in its business. From the model kitchens which intrigue visitors' attention when they enter the front door to the new automatic home laundry at the rear, the female slant is evident. There is much to interest men also.

The display floor contains an exhibit of New Freedom Gas Kitchens designed for different budgets. Numerous well-known makes of automatic gas ranges and gas-fired water heaters are shown. A complete line of gas refrigerators is included.

The basement holds a spacious auditorium with comfortable seats and pro-

jecting apparatus for motion pictures. A stage with model working kitchen as the background provides a space where cooking schools will be held regularly. In between times, the auditorium will be available for meetings of community and civic organizations, something which has been lacking in Greenwich since the recent conversion of the Masonic Temple to business purposes.

A novel feature in front of the building is the gas-heated sidewalk which will keep the walk free of snow and ice during cold weather. The concrete is underlaid with pipes containing a solution which will be heated by an automatic water heater.

Mr. Putnam, known for many years as a "Connecticut gas, water and power pioneer," has recognized together with other officials an increasing demand for gas in the less densely populated districts of the 50-square mile community. Consequently a subsidiary company has been formed to furnish LP-gas on an automatic delivery schedule.

## Obituary

**NORMAN H. COIT**, chairman of the board of directors, South Carolina Electric & Gas Co., Columbia, died in a Philadelphia hospital September 3. He had been admitted to the hospital a month earlier for treatment of a throat ailment.

Mr. Coit was born in Indianapolis and was graduated from the University of Colorado in 1917. He was vice-president and general manager of the South Carolina utility and president before he became board chairman.

**HENRY G. BRADLEE**, chairman of the executive committee and a director of Stone & Webster, Inc., utilities management firm, died at his home in Brookline, Mass., Wednesday, September 3.

Mr. Bradlee became associated with the concern in 1891, following graduation from M.I.T. For many years before it was incorporated he was a partner. Later he became a vice-president and treasurer. He was active in all the affairs of the company directed from its Boston office, particularly in matters dealing with the purchase, sale and management of public utility properties.

Besides being a director of Stone & Webster, Inc., Mr. Bradlee held directorships in the Chicago, Wilmington & Franklin Coal Co., Railway Light Securities Co., Tampa Electric Co. and Fall River Gas Works.

He also had been a director of the Accounting Service Corp., Investment Service Corp., Stone & Webster Engineering Corp., Stone & Webster Realty Corp., and the Stone & Webster Service Corporation.

He leaves his wife, a son, and a daughter.

**HOWARD MYERS**, publisher of *Architectural Forum* and a leading spokesman for the contemporary trend in architecture, succumbed to a heart ailment at his New York home September 18.

As chairman of the architectural advisory committee of the Federal Public Housing Authority, he was instrumental in promoting the most advanced standards in public housing. He was a director of the National Public Housing Conference.

One of the first editorial champions of the factory-produced house, Mr. Myers influenced the building industry to abandon traditional styles and adopt technological advances in structure and materials.

His entire career was devoted to the building field. He was manager of the housing department of the National Lead Co. 1915-1919, vice-president of *Architectural Forum* 1919-1925, its president 1925-1929, and publisher from 1930 until his death.

He also served from 1929 to 1930 as president of a corporation which published a group of trade journals including *Building Age*, *Good Furniture*, *Heating and Ventilating*, and *Building Material Marketing*.



## Report on Oven and Beehive Coke

THE eleventh report published by the U. S. Bureau of Mines, Department of the Interior, on the distribution of oven and beehive coke during 1946 shows the total distribution of coke during the calendar year, as reported by producers, amounted to 58,387,297 tons, a decrease of 13 percent from 1945 and 21 percent below the record set in 1944. Coke, the principal operating fuel in iron blast furnace and foundry operations, was in extremely heavy demand throughout the year and large requirements stimulated a vigorous expansion program in the oven-coke industry and prohibited the curtailment of beehive operations. At the end of the year 10,181 beehive ovens were in operation, an increase of 1,559 over January, and a total of 824 new vertical slot-type ovens with an annual coke capacity of 4,454,000 tons were under construction, mainly at steel plants where existing facilities were unable to meet requirements.

## Mines Bureau Issues Coal Research Report

INCREASED utilization of native low-grade coals to offset growing shortages of high-quality fuels, and greater economy and efficiency in governmental, industrial and domestic fuel-using operations, were among the principal objectives of a widely ranging coal research program carried on last year by the Bureau of Mines, according to a report released by Thomas H. Miller, acting director.

The eleventh in a series of annual reports on the Bureau's coal research and technological program, Information Circular 7417, "Annual Report of Research and Technologic Work on Coal, Fiscal Year 1946," reviews the achievements of Bureau engineers and scientists in coal mining and exploration, coal sampling and analysis, gas-and-dust explosion research, coal preparation and storage, coking and gasification studies, and the production of synthetic liquid fuels.

## KEEPING RAIL LINES OPEN

(Continued from page 445)

clamped against the rail base by heavy spring steel. The heater remains secure against vibration or other loosening influences, yet can be removed readily if desired.

Gas is supplied through a manifold and the burners are connected by a short length of heavy pneumatic tool hose which protects the gas line and manifold from rail movement and at the same time serves as an insulating medium against track and signal electrical circuits.

The small flame heats the rail base

directly, while the flue products spill out against the roadbed between the stock rail and the movable switch points, thus effectively preventing any accumulation of snow and ice. These burners consume between 13 and 16 cubic feet of manufactured gas an hour. They are made in various sizes to fit different rail weights and for application at frog points and movable frogs.

A second type applies the gas flame to the outside of the rail head. This heater, instead of having individual units, is a single member 18 to 22 feet long and employs a flame burning along its entire length parallel to the rail head. For long high speed turnouts these burners can be used in tandem. Each section of burner consumes about 300 cubic feet of manufactured gas an hour.

Reports show that the winter cost of fuel for the gas-fired switch heater is far less than the costs of keeping the switches clear by the old-fashioned, inefficient broom and shovel method.

## A. G. A. CONVENTION PROGRAM

(Continued from page 426)

Home Service Director, Oklahoma Natural Gas Co., Tulsa, Okla.

Cashing In on the New Freedom Gas Kitchen Program

C. S. Stackpole  
Merchandise Manager, Consolidated Gas Electric Light & Power Co., Baltimore, Md.

It's Later Than You Think

H. D. Brown  
President, Good House Stores, Inc., Philadelphia, Pa.

## Technical Section

MONDAY, OCTOBER 6—2 P.M.

LITTLE THEATRE AUDITORIUM

Presiding:

C. S. Goldsmith, Chairman  
Technical Section

Address of Chairman

C. S. Goldsmith  
Engineer of Distribution, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Address

Hudson W. Reed, President  
The Philadelphia Gas Works Co., Philadelphia, Pa.

The Objectives of the Meter Engineer

Henry J. Sterk  
Supt. of Meter Shop, The Peoples Gas Light & Coke Co., Chicago, Ill.

## Motor Vehicle Committee Report

B. D. Connor, Chairman  
Supt. of Transportation, Boston Consolidated Gas Co., Jamaica Plain, Mass.

## Distribution Committee Report

J. H. Collins, Sr., Chairman  
Gen. Supt., Gas Dept., New Orleans Public Service, Inc., New Orleans, La.

## Handling and Storage of LP Products

A. B. Lauderbaugh  
Chief Gas Engineer, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

## Joint Meeting Manufactured Gas Department and Technical Section

TUESDAY, OCTOBER 7—2 P.M.

LITTLE THEATRE AUDITORIUM

Report of Manufactured Gas Department Nominating Committee and Election of Managing Committee Members

What Natural Gas Can Do for the Manufactured Gas Industry

Hugh H. Cuthrell  
Vice-President, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Possibilities in the Extension of Utility Gas Service

Elmore S. Pettyjohn  
Director, Institute of Gas Technology, Chicago, Ill.

## Gas Production Committee Report

S. Green, Chairman  
Engineer of Manufacture, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Steam Generation at 600 psi 700° F As Applied to Carburetted Water Gas Plant

A. D. Harrison  
Engineer of Developing and Planning, The Brooklyn Union Gas Co., Brooklyn, N. Y.

## Technical Section

WEDNESDAY, OCTOBER 8—2 P.M.

LITTLE THEATRE AUDITORIUM

Report of Nominating Committee

L. J. Eck, Chairman  
Vice-President, Minneapolis Gas Light Co., Minneapolis, Minn.

Election of Officers

A Method of Testing the Adequacy of Gas Distribution Systems

John J. Pugh  
Assistant Engineer, Pacific Gas & Electric Co., San Francisco, Calif.

## Chemical Committee Report

W. R. Fraser, Chairman  
Experimental Engineer, Michigan Consolidated Gas Co., Detroit, Mich.

## Motor Transportation in the Gas Industry

Harry O. Mathews  
Fleet Operations Manager, Standard Brands Inc., Chicago, Ill.

## The Economics of B.t.u. Storage

Irving Resnick, Senior Process Engineer, Stacey-Dresser Engineering Co., Cleveland, Ohio

## PRODUCTION OF HIGH B.T.U. GAS

(Continued from page 436)

generator process in which two chambers are used for the initial vaporization and cracking of the oil.

As more and more companies find it necessary to produce this high B.t.u. oil gas there probably will be further modifications and improvements. Both the heat and the make oil sprays may be improved by adopting pressure atomizing sprays. It is probable that the heat oil spray assembly will include improved means for air admission so that the combustion is better confined to the empty space in the top of the generator or primary shell. It is anticipated that more and more operators will use carbondum lining and checkerbricks in the generators or primary vaporizers. The development of some method of back blasting or back running through the set to lower the temperatures in the top of the superheater seems desirable.

### Heavy Oil

When these high B.t.u. processes are used as stand-by processes or for short peak loads there is every incentive to use premium fuels in the form of the best gas oils that can be obtained. When the process is considered as a base load process, the cost of oil becomes a major consideration and a process that could use heavy oils containing a relatively large amount of carbon residue would be welcomed. The oil available for peak load plants is constantly decreasing in quality and many plants must operate on oils that would have been given little consideration ten years ago.

The Gas Production Research Committee has recognized the desirability of developing a process that would produce high B.t.u. gas from low grade oils or oils with high carbon residue. They have authorized a test of a process for the production of high B.t.u. gas from these heavier oils.

The heavy oil test will be made in the plant of the Consolidated Gas Electric Light & Power Co. of Baltimore, on apparatus that has been made available by this company. To make this test the carburettors and superheaters of two old water gas sets have been cross-connected at the top of the carburettors and the generators have been eliminated. It is

proposed to blow the sets from the top of one superheater through the two carburettors and out the top of the other superheater. After a run the blow will be reversed through the four shells. By this means the temperature of the exit gases will be reduced because of the regenerative effect at the top of the superheaters and preheated air will be available from the superheaters for the combustion of the carbon deposited by the cracking of the oil. It is expected that the reduction in exit gas temperatures will result in large savings of fuel, that the preheated air will serve to keep the carbon burned from the checkerbrick and that this combustion will supply heat for the process.

The cycle that will be used appears somewhat complicated at first glance, but this is largely because of the reversal that occurs on alternate cycles. If the principle can be established, then it should be possible to follow this method in two shell sets and further refinements and experience will probably simplify the operation.

Some of the work of the Gas Production Research Committee does not appear to be directly related to the production of high B.t.u. gas until the project and the problems of high B.t.u. gas production are studied together. Obviously the reforming of higher hydrocarbons

into natural gas substitutes has a direct application. It is not so apparent that the work on the steam-carbon reaction at the Institute of Gas Technology and on the mechanism of the water gas reaction at Battelle Memorial Institute apply to the production of high B.t.u. gas. As a matter of fact, one of the governing problems in the production of high B.t.u. gas is carbon utilization and these two projects are designed to contribute to our knowledge of this important phase of gas production.

We are currently investigating the fluidization technique for the gasification of fluids and solids. The application of this process to the gasification of oils will require a process that will operate at much higher temperatures than those used in oil refineries for gasoline production. The development of such a process would offer an alternative means of producing this high B.t.u. gas from fluid hydrocarbons, either LP-gases, gas oils or heavy oils.

The work in the new oil laboratory at the Institute of Gas Technology on oil gasification will probably be concentrated on the gasification of oils under conditions that are suitable for the production of a high B.t.u. gas. This project and the investigation of water gas tars at Pennsylvania State College will contribute directly to the develop-



ment and improvement of high B.t.u. processes.

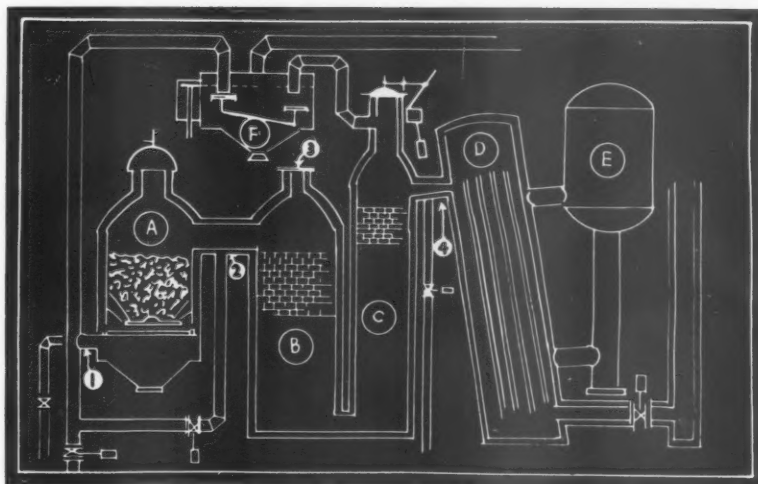
Another project of the Committee that should be followed by all who must produce peak or substitute gases is the mixed gas research investigation now being conducted at the A. G. A. Testing Laboratories in Cleveland. Research Bulletin No. 36, "Interchangeability of Other Fuel Gases with Natural Gas," indicated the percentage of high B.t.u. carburetted water gas that might be mixed with various natural gases but did not thoroughly develop the modifications that might be made in the high B.t.u. gas. We hope to study this problem and develop some additional information during the current investigation.

### Other Processes

Other processes that might be used for the production of high B.t.u. gas have not been considered in any detail because they normally require a large investment and are associated with the production of large quantities of by-products.

The Hughes oven as used in Portland, Ore., produces a high B.t.u. gas, valuable light oils and a pitch coke that is potentially profitable. Refinery operations can be conducted to produce a large quantity of gas and premium motor fuels. Both of these processes under proper economic conditions may find a wider application as base load gas producing methods. However, these processes that produce a large proportion of the product in forms other than gas cannot be considered for peak loads nor can they be considered as a general answer to the problem of producing high B.t.u. gas. They must be studied for application into individual situations.

I believe that where the high B.t.u. gas is made in limited quantities or in small properties propane or butane air gas will provide the answer. When the demand for this high B.t.u. gas develops to a point where interchangeability is the governing factor, for example, at the end of transmission mains, then catalytic plants for reforming LP-gases will be considered. Where existing plants can be modified and where relatively large quantities of gas must be produced over extended periods of time, then some form of high B.t.u. oil gas will probably be selected.



## Secrets of a Water Gas Plant

Using one of the drawings of the Prospect Street Plant of the Citizens Gas and Coke Utility, Indianapolis, shorn of all technicalities, you see above a schematic diagram of a water gas set. It is a mystery to most of us laymen just how combustible gas is made from water. It sounds like a good trick, if you can do it. Well, it's being done every day and here is a simple explanation how:

The Generator (A) contains the fuel (and a mechanism at the bottom that keeps knocking the clinkers off as fast as they form) and is connected at the top with the Carburetor (B). The Carburetor has a nozzle at the top, the rest of it is completely filled with clay bricks in a staggered fashion, leaving air spaces between each brick. The Carburetor is connected with the Superheater (C) at the bottom. This last unit is also filled with bricks just like the Carburetor.

The water gas sets at the Prospect Street Plant run in four-minute cycles and here is what happens in a cycle: First . . . the BLOW RUN. This simply means heating the set by forcing 11,000 cubic feet of air through the set per minute. The air enters the Generator (A) at (1), goes through the fuel and picking up carbon becomes Carbon Monoxide, CO, which catches fire and roars through the other two parts of the machine, heating the bricks to a high degree of temperature. It's important that the set be very hot and additional air is forced into the set at (2) supplying additional oxygen to assist in burning the Carbon Monoxide. The air is then shut off, the damper closed and the next operation takes place.

This is the FIRST UP RUN, and consists of shooting steam through the same hole (1) that air was being forced through on the first phase of the operation. Steam, of course, is just water, H<sub>2</sub>O, and as it passes through the fuel becomes Hydrogen and Carbon Monoxide. As this water gas passes into the Carburetor (B), several gallons of oil are sprayed into it at (3), adding the necessary heat units. The more oil is added, the greater the B.t.u. content of the gas. The heated bricks in the carburetor crack the oil, so the gas can be enriched.

At this point it would be explained that

you can't keep blowing steam continually in one direction without getting one end of the machine too hot and the other too cool. So to equalize the heat the next step of the operation takes place, the BACK RUN. This means that steam is forced into the set at (4) and the machine operates backwards, as it were, the gases coming off at (1), just the reverse of what took place before, except that no oil is sprayed into the gas.

By this time the machine has cooled off and needs heating so the fourth operation, the SECOND UP RUN takes place. This operation is also called a Purge, because the purpose of it is to blow the remaining gases out of the machine. Air is forced in at (1) while the damper is still closed, then as most of the gas is out of the machine the damper is opened and a new cycle starts. Believe it or not, all this has taken exactly four minutes.

If you are wondering what the other two gadgets are, labeled (D), and (E), you have a little surprise coming. Remember the very first operation, the Blow Run, when air was blasted through the set and turned into burning Carbon Monoxide?

This burning gas, after leaving the superheater, entered (D) the Waste Heat Boiler, which is filled with water pipes. The water turns to steam and is stored in (E), the Steam Drum, to be used in the second step of the operation—when this same steam is forced through the set to make gas. A neat little trick—a sort of perpetual motion principle. The device marked (F) is the Wash-Box, where tar is removed from the water gas before it is used to under-fire the ovens.

Entirely automatic in operation, except for periodic filling with fuel, water gas sets are truly marvels of modern engineering.

—The Gas Flame.



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Frederick E. Graves, Columbia Burner Co., Framingham, Mass.

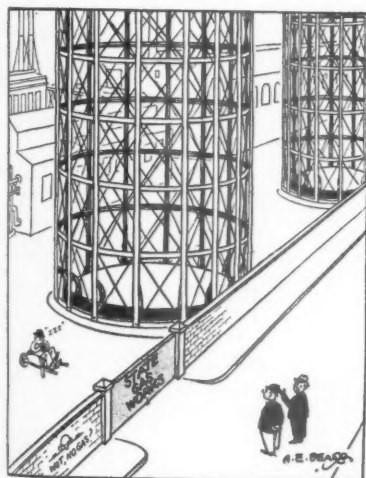


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 Arthur J. Green, Southern Union Gas Co., Carlsbad, New Mexico  
 William J. Gregory, Southern California Gas Co., Huntington Park, Calif.  
 T. T. Grimshaw, Southern California Gas Co., Los Angeles, Calif.  
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 Thomas A. Loftus, Brooklyn Borough Gas Co., Coney Island, N. Y.  
 D. E. Lowe, Southern California Gas Co., Los Angeles, Calif.  
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 M. D. Moore, A. O. Smith Corp., Chicago, Ill.  
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 Hammitt L. Robbins, The Philadelphia Gas Works Co., Philadelphia, Penna.  
 F. H. Roberts, Northern Natural Gas Co., Omaha, Neb.  
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 Pemberton H. Shober, General Coal Co., Buffalo, N. Y.  
 Blanchard Smith, The Chaplin-Fulton Mfg. Co., Kansas City, Mo.  
 Carl B. Smith, Dearborn Chemical Co., Chicago, Ill.

## Brave New World



"Some say the Government took it over just to prove they can avoid inflation somewhere"  
 —("Record" cartoon reprinted in The London "Gas Times")

Charles Smith, A. O. Smith Corp., Chicago.  
 Ralph B. Stevens, Sr., Milwaukee Gas Light Co., Milwaukee, Wis.  
 Kenneth W. Stookley, The Gas Machinery Co., Cleveland, Ohio  
 E. E. Stricklen, Southern California Gas Co., Glendale, Calif.  
 Raymond E. Sweeney, U. S. Pipe & Foundry Co., Boston, Mass.  
 Sumner B. Sweetser, Standard Oil Development Co., Elizabeth, N. J.  
 Teofilo M. Tabanera, Direccion General del Gas del Estado, Buenos Aires, Argentina  
 Guy E. Tannyhill, Pacific Gas & Electric Co., San Rafael, Calif.  
 Claude S. Thompson, Colorado Interstate Gas Co., Colorado Springs, Colo.  
 Edward Titus, Gas Magazine, New York, N. Y.  
 John W. Townsend, Eclipse Fuel Engineering Co., New York, N. Y.  
 Lucille M. Traverse, The East Ohio Gas Co., Cleveland, Ohio  
 Daniel L. Turner, San Diego Gas & Electric Co., San Diego, Calif.  
 Ellsworth Ungethuen, Connelly Inc., Elizabeth, N. J.  
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 Kenneth W. Van Gundy, Pacific Gas & Electric Co., San Francisco, Calif.  
 G. M. Van Ness, Southern California Gas Co., Los Angeles, Calif.  
 Charles K. Vernon, Elizabethtown Consolidated Gas Co., Elizabeth, N. J.  
 George Vetter, Southern California Gas Co., Compton, Calif.  
 Joseph G. Voelker, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.  
 Carl Walder, Best Stove & Repair Co., Cleveland, Ohio  
 Charles I. Wall, West Texas Gas Co., Lubbock, Texas  
 Harry C. Walton, Warren Engineering Corp., Chattanooga, Tenn.  
 Paul M. Walton, National Gas & Oil Corp., Newark, Ohio  
 R. V. Wayne, Tampa Gas Co., Tampa, Florida  
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 Lynne E. Wetzell, General Controls Co., Cleveland, Ohio  
 Walter F. White, Jr., Queens Borough Gas & Electric Co., Far Rockaway, N. Y.  
 Adolph H. Wicht, Queens Borough Gas & Electric Co., Far Rockaway, N. Y.  
 Clarence J. Wilhelm, U. S. Bureau of Mines, Bartlesville, Okla.  
 George T. Williams, The United Light & Railways Service Co., Davenport, Iowa  
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Wilfred Woobank, Woobank Machinery Co., Tulsa, Okla.  
 Edmund W. Young, Bethlehem Steel Co., Bethlehem, Penna.  
 R. B. Young, III, Southern California Gas Co., Los Angeles, Calif.  
 Harry C. Yoxall, Jr., Consolidated Edison Co. of N. Y., Inc., New York, N. Y.  
 Louis A. Zeitz, The East Ohio Gas Co., Canton, Ohio

## REMOTE CONTROL IN DALLAS

(Continued from page 432)

buzzer, audible to the caller for a period of time proportional to the pressure.



## SERVICES OFFERED

**Gas Engineer**—Young, available immediately, two years' experience in c.w. gas manufacture. One as cadet; large metropolitan gas company. One as Supt. of Manufacture in overseas gas plant of large American Corp. Also two years' distribution experience. Graduate, Licensed Engineer; speak some Spanish. Single, veteran, best references. Excellent health. 1548.

**Successful Consultant**, 17 years' experience in developing and stabilizing Net Revenues for Gas and Electric operations. Three and one half years field service Army Engineers. Having traveled continuously wishes permanent position and fixed base with progressive utility. Can get things done. 1549.

**Salesman**—Several years of experience selling heating and cooking appliances of every description in various territories. Ability and experience to operate a stove department, direct the efforts of a selling organization promoter of specialties, etc. No preference as to territories; will travel anywhere. Only interested in a lucrative arrangement. 1550.

**Labor Relations Man.** Practical, engineering and legal backgrounds. 18 years diversified experience, manual labor, engineering, management, personnel, labor relations large nationally known manufacturer. B.S., M.E., I.L.B. degrees. Licensed professional engineer New York and Ontario. Member N. Y. Bar. Commander USNR. Considerable success in dealing with labor groups. (37) 1551.

**Gas Engineer**—Graduate M.E. Public Service Commission Experience, Gas Utilities, Engineering Surveys and Reports, Reports on Contracts. Professional Engineering License Pending. (28) 1552.

**Gas Engineer** with Mechanical Engineering degree and Professional Engineering License. 10 years' experience consisting of research and testing work at the A. G. A. Laboratories, consulting work and the design, development and production of gas heating equipment. 1553.

**Assistant Chief Engineer**, Graduate. Seventeen years' experience; 70,000 meters; design, construction of transmission lines compressor stations. Extensive knowledge natural, mixed gas production, storage, measurement, distribution, corrosion problems. Qualified for management or engineering department head. Well known throughout industry. Good record with labor. Employed at present but considering change. (40) 1554.

Recently graduated as a **chemical engineer**. Served in the Navy having service training and experience in electronics. Would like a

The period of the buzz is timed and then converted into pounds pressure. The chief advantages of this type instrument are:

1. Modest first cost.
2. Standard monthly service charge for a telephone.
3. Pressures may be obtained from any available telephone.
4. Requires no attendant.

Obtaining and controlling pressures from remote points is practical and has a dollar and cents value. Its possibilities to the industry are large.

position involving process development or unit operations. No preference as to section of the country. 1555.

**Executive Assistant**—Graduate Harvard Business School in financial, accounting, administrative, economic, and regulatory aspects of utility management desires position of broad coverage. Six years' utility experience preparing studies for management: rate of return, valuation, rate cases, forecasts, etc. Accountant, mathematician, statistician, financial analyst, administrative and supervisory experience. Young, married, veteran. 1555.

## POSITIONS OPEN

**Assistant Superintendent Water Gas Plant** making Synthesis Gas in thirteen 11 foot U.G.I. units. Experienced man with a technical educational background desired, salary commensurate with ability and experience, large Chemical Plant located in northern West Virginia. 0501.

**Water Heater Engineer**—For responsible position with major manufacturer. Must have thorough technical background covering design, development, and manufacturing procedures. Outstanding opportunity and commensurate salary. 0502.

**Chemical Engineer or Chemist** to make and supervise analyses in carburetted water gas plant and to improve efficiencies of operations and facilities. 0503.

**Engineer**—design and test gas-fired residential heating appliances. Must have engineering degree and at least 5 years' experience in design and test of such appliances. Permanent position with excellent future with well-known manufacturer located in metropolitan N. Y. Give particulars of experience in full detail, and salary requirements. 0504.

**Gas Appliance Engineer**—Should be familiar with the development and testing of gas-fired heating equipment. Good opportunity with progressive West Coast manufacturer. Give complete information on experience and salary expected. 0505.

**Plant Superintendent**—One capable of taking full responsibility—water gas using coke and heavy oil. Eastern utility with send-out 475,000 M.C.F. annually. 0506.

**Superintendent** for small gas property with water gas plant. Eventually propose to change to natural gas or propane-air gas and establish an affiliated bottle gas business. Excellent opportunity for someone. Location New Jersey. 0507.

**Accountant** who has had experience with small Utility company. Able to keep general books, customer's accounting records and supervise office force for small gas utility and affiliated bottle gas and appliance company. Location New York and New Jersey. 0508.

**Chief Engineer** for modern Southern stove plant manufacturing gas ranges, oil ranges and heater. Must have thorough knowledge of sheet metal working equipment, tool and die design, cost estimating and purchase of tools, dies and fixtures. Excellent opportunity for permanent employment. State qualifications. (This information will be confidential and no request for references will be made without your full consent.) 0509.

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